

Eryngium of Turkey - some flora descriptions

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- **This is a companion document** to the visual Eryngium guide for Antalya region and Turkey generally, which can be found at [archive.org](#) and [academia.edu](#)

Info: Original description with minor modifications. **Added:** some blue field titles added or trivially adjusted from text, but most just the text with colon added; **shortening:** synonymy sometimes shortened or skipped; authors may be skipped on herbarium specimens, non-Turkish national geographic usually skipped; **unchanged:** the text itself is unchanged; **adjustments:** except Syria-Palestine Post 1932 will have the metre measurements converted to mm or cm, and texts that use commas for a decimal may have it changed to a dot; **checks:** the numbers and measurements are always specifically checked; when the original text was English and OCR'd with the OCR looking accurate the words may have slight typos because they were not specifically checked (normal OCR doesn't improve the text and the line ends line up like a page so checking can be more focussed), when English but AI-OCR'd or a poor OCR the text was also fully checked (AI can alter things and removes line ends); when non-English the text was fully checked, and AI asked to spot further OCR errors, then translated usually by Claude, and quoted verbatim, with occasional manual word improvements.

amethystinum (Greece)

PoWo - **Native:** Albania, Greece, Italy, NW. Balkan Pen., Sicilia; **introduced:** Czechia-Slovakia, Germany, Great Britain, Ireland

Sell3 2009

5. E. amethystinum L. Italian Eryngo

Plant: Perennial monoecious herb with a tap-root.

Stems: 20-45 cm, pale bluish-grey, erect, rigid, solid, striate, glabrous, branched above, leafy.

Leaves: dark green with paler central area of segments on upper surface, hardly paler beneath, coriaceous;

basal: usually persistent, the lamina 10-15 cm, obovate in outline, palmatisect above and pinnatisect below, the segments 2- or 3-pinnatisect with linear-lanceolate and spinous-serrate segments, the petiole broadly winged;

cauline: gradually smaller and less divided upwards, the petioles winged and amplexicaul;

all: glabrous.

Inflorescence: usually bluish, of numerous, ovoid heads 18-22 mm in diameter, arranged in further umbels at the ends of branches;

bracts: 2-5 cm, much longer than the flowers, linear, with a spiny tip and 1-4 pairs of spines;

bracteoles: entire or 3-cuspidate.

Sepals: 5, 1.5-2.5 mm, ovate-lanceolate, shortly aristate.

Petals: 5, blue, emarginate at apex.

Stamens: 5; filaments blue; anthers pale blue.

Styles: 2, slightly thickened at base; stigma tapering.

Ovary: with a more or less flat disc at the apex.

Schizocarp: about 5 mm, obovate, scarcely compressed, sparsely covered in white scales; commissure broad; carpophore absent; vittae very slender.

Flowers 7-8. $2n = 14, 16$.

Geo: Introduced. Grown for ornament. Naturalised on dunes in Caernarvonshire since 1963; a rare relic of gardens elsewhere. Native of the Balkan Peninsula and Aegean region, Italy and Sicily.

Atlas of the Aegean 2016

Eryngium amethystinum L. - Map 231

Syn.: *E. multifidum* Sm.

Plant: Glabrous perennial.

Rootstock: with a fibrous collar.

Stem(s): single or few, 40-60 cm, suberect.

Leaves: rather long, palmatisect above and pinnatisect below.

Inflorescence: with a metallic-blue tinge; branches erecto-patent, bearing globose heads

Bracts: subtended by 6-10 spine-tipped bracts.

Hab: A species of rocky and stony mountain pastures,

Recognition: sometimes confused with the lowland species *E. creticum*, but readily distinguished by the perennial habit and shape of the leaves. Almost all specimens from Greece are referable to var. *tenuifolium* Boiss. (syn.: *E. multifidum*).

Flora Europaea 1968

23. *E. amethystinum* L., Sp. Pl. 233 (1753) (incl. *E. glomeratum* Lam.).

Plant: Perennial;

stems: 20-45 cm, erect.

Basal leaves: usually persistent, coriaceous; lamina 10-15 cm, obovate, palmatisect above and pinnatisect below, the segments 2- or 3-pinnatisect with linear-lanceolate, spinescent-serrate segments; petiole broadly winged.

Inflorescence: usually bluish, cylindrical to corymbiform with usually numerous pedunculate, globose or ovoid capitula 1-2 cm.

Bracts: 2-5 cm, 5-9 linear-lanceolate, with 1-4 pairs of spines;

bracteoles: entire or 3-cuspidate.

Sepals: 1.5-2.5 mm, ovate-lanceolate, shortly aristate.

Fruit: sparsely scaly.

Hab: Dry places.

Geo: Balkan peninsula and Aegean region; Italy and Sicilia. Al ?Bu Cr Gr It Ju Si.

babadaghensis

PoWo - Turkey only

PDF babadaghensis 2012

SEE TABLE for comparison with *E. kotschyi*

Plant: Glabrous perennial: with a fibrous collar.

Flowering stems: erect, up to 75 cm tall, the upper part bright blue and the underside glaucous.

Basal leaves: persistent, numerous, petiolate, coriaceous; lamina obovate, narrowly cuneate at the base, 9-24 × 10-14 cm, palmately veined, 3-4 palmatisect with (3-)5-7 linear segments, segments pungent, parallel veined, 2-3 mm broad, the terminal segment longer than the lateral segments, petiole 9-22 cm, sheathed, often spiny near apex;

middle cauline leaves: similar, coriaceous, 2- to 4-palmatisect with (3-)5-7 elongate segments, 8-21 × 13-19 cm, segments linear, 0.5-1 mm wide at the apex, terminal segment 6-11 mm long, petioles up to 4 cm long, sheathed, often spiny near the apex;

upper cauline leaves: similar but with a shortly sheathed, spiny-margined petiole; prophyllae trifid, 60-80 × 7-12 mm, acute, spiny margined.

Synflorescence: paniculate, stout;

capitula: 7-23, hemispherical, 8-25 mm in diameter;

involucral leaves: 6-10 per capitulum, subulate, 20-70 × 2-6 mm, unequal, 2-4 × as long as capitulum, linear lanceolate with a broadened midrib and 1-2 pairs of spines;

bracts: all entire or the outermost tricuspidate, linear, pungent, 9-18 mm;

sepals: 3.3-3.8 mm, ovate, with a thickened midrib, acuminate, sometimes mucronate, broadly scarious margined, the calyx epidermal surface tuberculate-striate;

petals: 3.5-4.0 mm, white to lilac with a long inflexed lobe; style 7-9 mm long;

fruits: oblong or ovate-oblong, 9-10 mm long (including sepals), 3.0-3.8 mm broad, flattened, with long-acuminate to subulate appendages at the margins and the apices, shorter ones on the back; mericarps usually obovate-depressed, 5 rib with oil ducts present, associated with some bundles; mesocarp unligified; endocarp partially lignified; vallecular and commissural vittae present; endocarp consists of 1 layer of parenchymatous cells; carpophore absent; druze crystals dispersed in the endocarp and mesocarp (Figure 2); the mesocarp surface of *E. babadaghensis* is aculeate under SEM (Figure 4). Fl. 7-8, Fr. 8-10.

Chromosome number: 2n = 56, 112 (mixoploid).

Anatomical characters: Transverse sections were cut through the upper part of the peduncle. The peduncle is triangular or rounded and ribbed in section. The single layer of epidermal cells is covered with a crenate cuticle. The collenchyma tissue is located below the epidermis. It is irregular, 10- to 12-layered in the ribs, and 8- to 9-layered in the hollows. The parenchymatous tissue is located below the collenchyma tissue. Secretory canals are numerous (37-39) and embedded in the parenchymatous tissue. Some parenchymatous and collenchymatous cells contain numerous crystals. Vascular bundles are numerous (17-20) and arranged in a ring. Phloem and xylem are partly separated from each other by sclerenchyma tissue. The phloem is embedded in sclerenchyma tissue and parenchyma tissue. The xylem is embedded in the sclerenchyma tissue. The pith consists of large orbicular or polyhedral parenchymatous cells. The secretory canals are few in number (3-4) and embedded in parenchymatous tissue. Some parenchymatous cells contain a few crystals (Figure 3).

Differs: from *E. kotschyi* by its linear basal leaf segments with the terminal segment longer than

the lateral, by the longer petioles (9-22 cm versus 5-15 cm), the linear cauline leaf segments up to 1 mm broad, the styles 7-9 mm (versus 9-10 mm), the ovate-oblong to oblong fruits (versus ovate), and the peduncles with prominent ribs; the 17-20 vascular bundles (versus 14-17); and 37-39 secretory canals (versus 26-29).

Paratypes: C2 Muğla: Fethiye, Babadağ, Eşekbayıltan site, 1463 m, stony slope, serpentine, clearing in *Juniperus excelsa* communities. 08.09.2008 (ISTE 86122); Fethiye, Eren Mountain, Girdev (Eren) plateau, 1700 m, 29.10.2009 (ISTE 87041).

Conservation status: *Eryngium babadaghensis* is endemic to south-west Anatolia. It is an eastern Mediterranean floristic element. The new species is recorded from only 2 localities near Fethiye (Muğla) in an area of occupancy estimated to be less than 500 km²; the population size is estimated to be below 250 mature individuals. Therefore, it should be classified as endangered EN (criteria B2a, D1) (IUCN, 2001).

Ecology: *Eryngium babadaghensis* grows at an altitude of 1400-1700 m on the slope of a serpentine hill under the relatively open canopy of *Juniperus excelsa* M.Bieb. and *Cedrus libani* A.Rich. with *Teucrium scordium* L., *Satureja spinosa* L., *Capsella bursa-pastoris* (L.) Medik., *Stellaria media* (L.) Vill., *Silene italica* (L.) Pers., *Buxus sempervirens* L., and *Asyneuma linifolium* (Boiss. & Heldr.) Bornm. It is endemic to south-west Turkey (Figure 1).

billardieri

PoWo - Afghanistan, Iran, Iraq, Lebanon-Syria, Pakistan, Transcaucasus, Turkmenistan, Turkey, West Himalaya

Flora of Turkey 1972

17. *E. billardieri* Delar., *Eryng.* Hist. 25, t. 2 (1808). Syn: *E. nigromontanum* Boiss. & Buhse, *Aufz. Transk. Pers.* 95 (1860); *E. billardieri* Delar. var. *melocephalum* Boiss., *Fl. Or.* 2:825 (1872)! *E. orientale* Stapf & Wettst. in *Denkschr. Akad. Wiss. Wien, Math.-Nat. Kl.* 51:47 (1886). Ic: Takhtajan & Fedorov, *Atlas Fl. Erevana*: t. 82 (1946). Map 48, p. 305.

Plant: Rigid perennial with fibrous collars.

Stems: several, (20)40-75 cm, laxly branched from about the middle.

Basal leaves: persistent, coriaceous, glaucous, petiole not spiny, lamina triangular to suborbicular in outline, 7-15 cm long and broad, ternate with bipinnatifid primary segments, the lobes and winged rachis dentate. spinose.

Cauline leaves: smaller, the median and upper ones broad, subamplexicaul with spiny-margined base, those of the inflorescence tripartite.

Inflorescence: pale glaucous to amethyst, loosely paniculate with slender ascending branches; capitula numerous (over 20), globose, 9-17 mm diam.

Bracts: 5-7(8), linear-lanceolate, pungent, 3(5)-nerved, ± recurved, entire or remotely spinulose, 1.5-3 x capitulum.

Bracteoles: longer than sepals, all entire, or the outermost tricuspidate.

Mericarps: covered with ovate, obtuse to acute scales.

Fl.: 7-8. Rocky slopes, steppe, fallow fields, 1400-3810 m, locally dominant.

Described: from the Orient.

Geo: A8 A9 B7 B8 B9 C6 C9 C10 Lebanon, Anti-Lebanon, Soviet Armenia, N., N.W., and W. Iran, N. Iraq, Afghanistan, W. Pakistan, Kashmir. Ir.-Tur. element.

Note: A very variable species, especially in inflorescence form and colour, length of bracts and

form of outer bracteoles. Specimens from Lebanon (locus classicus) and Anti-Lebanon usually have longer bracts than other material, but this hardly seems to justify treating the latter as a separate race (subsp. *nigromontanum*). The recently described *E. hainesii* Townsend from N. Iraq (compared by its author to *E. glomeratum* and *E. thyrsoides*) comes very close, despite its thyrsoid panicle, to forms of *E. billardieri* (vide D. 20433 cited above).

Flora Iranica 1987

6. *E. Billardieri* F. DELAROCHE, Eryng. Alep. Hist. 25 (1808). Syn.. *E. Noëanum* Boiss., Diagn. Pl. Or. Nov. Ser. 2, 2: 72 (1856). *E. Kotschy* Boss, l.c. ser. 2, 5: 97 (1856). *E. nigromontanum* BOISS. & BUHSE, Nouv. Mém. Soc. Nat. Mosc. 95 (1860). *E. orientale* STAPF & WETTST., Denkschr. Akad. Wiss. Wien Math.-Nat. Kl. 51: 315 (1886). *E. Billardieri* var. *meiocephalum* BOISS., Fl. Or. 2: 825 (1872). *E. Billardieri* var. *nigromontanum* (BOISS. & BUHSE) WOLFF in ENGLER, Pflanzenr. IV, 228, 61: 150 (1913). *E. balchanicum* BOBROV., Fl. URSS. 15: 589 (1950). Icon.: ... Typus: ...

Plant: Perennial, polycarpic plants.

Stems: usually solitary or rarely few, slightly striate, 40-80 cm tall.

Basal leaves: long-petiolate, 5-20 cm long, with spineless petioles, dilated at base, subamplexicaul, blades broadly ovoid or triangular in outline, coriaceous, reticulate-veined, deeply tripartite, with primary lobes lanceolate, bipinnatifid or pinnatifid, decurrent, spinose-dentate on margins, mucronate at apex.

Lower cauline leaves: short-petiolate; subtending leaves sessile, amplexicaul, with narrow sheaths, serrate-spinose-dentate on margins, blades palmate, tripartite or trifid, with attenuate lobes, deeply spinose-dentate on margins.

Synflorescence: corymbose, bluish or amethyst or rarely greenish, trichasially divided at apex, with primary paraclusters obliquely ascending, terminal ones cymoid or haplocymoid.

Upper subtending leaves: rigid, sessile, lower ones deeply trisect, very spiny on margins and apex, others entire, with long spines at apex.

Diploscia: numerous (15-20), rounded-ovoid, 9-15 mm in diameter.

Bracts: 6-9, subulate, bluish, 2-4 cm long, with few acicular spines on margins (usually 2), twice to three times longer than the diploscia.

Bracteoles: entire, mucronate.

Calyx teeth: oblong-lanceolate, cuspidate at apex.

Fruit: dorsally compressed, with mericarp scales imbricate, broadly ovate or obovate, somewhat obtuse at apex, tuberculate over entire surface; tubercles depressed, blunt.

Vittae: numerous, subcyclic, absent on commissural side, ridge vittae large, solitary.

Gen: $n=7,8$; $2n=16$.

E. Billardieri is the most widely distributed species in the Flora-Iranica-area. It is rather variable, particularly in the dissection of the leaves and in the form of synflorescence. A comparison of the authentic specimens of *E. nigromontanum*, *E. Noëanum* and *E. balchanicum* with the numerous ones of *E. Billardieri* from the various regions of Flora Iranica and the adjacent territories clearly demonstrates that the diagnostic features indicated in the descriptions of these species are not constant and vary in the limits of variation of *E. Billardieri*. In Transcaucasia it is difficult to separate *E. Billardieri* and a closely related species *E. campestre* which does not occur in the Flora Iranica region although HANDEL-MAZZETTI reported it from some localities in Iraq and P. H. DAVIS indicated it from all of south-western Asia up to Afghanistan. *E. Billardieri* and *E. campestre* may

be separated most reliably by the form of the scales covering the dorsal surface of the mericarps: the former has broad scales obtuse on the top whereas the latter has lanceolate ones pointed on the top. They also differ in the anatomical structure of the petioles: *E. campestre* has central vascular bundles in addition to the common peripheral ones whereas these are lacking in *E. Billardieri*.

(Claude)

Plantae perennes, polycarpicae. Caules vulgo solitarii vel raro pauci, leviter striati, 40-80 cm alti. Folia radicalia longe petiolata, 5-20 cm longa, petiolis inermibus, basi dilatatis, subamplexicaulibus, laminis ambitu late ovoideis vel triangulatis, coriaceis, reticulato-venosis, profunde tripartitis, eis lobi primarii lanceolatis, bipinnatifidis vel pinnatifidis, decurrentibus, margine spinoso-dentatis, apice mucronatis. Folia caulina inferiora brevipetiolata; folia fulcrantia sessilia, amplexicaulia, vaginis angustis, margine serrato-spinoso-dentatis, laminis palmatis, tripartitis vel trifidis, lobis attenuatis, margine profunde spinoso-dentatis. Synflorescentia corymbosa, coerulescens vel amethystina vel raro virens, apice trichasialiter divisa, paracladiis primariis oblique sursum vergentibus, terminalibus cymoideis vel haplocymoideis. Folia fulcrantia superiora rigida, sessilia, inferiora profunde trisecta, margine apiceque spinosissima, cetera integra, apice longe aculeata. Diplosciadia numerosa (15-20), rotundato-ovoidea, 9-15 mm diametro. Bractee 6-9, subulatae, coerulescentes, 2-4 cm longae, margine aculeis acicularibus paucis (vulgo 2) praeditae, diplosciadiis duplo usque triplo longiores. Bracteolae integrae, mucronatae. Dentes calycini oblongo-lanceolati, apice cuspidati. Fructus dorso compressus, squamis mericarporum imbricatis, late ovatus vel obovatus, apice obtusiusculus, tota facie tuberculatus; tuberculi depressi, mutici. Vittae numerosae subcyclicae, latere commissurali nullae, jugales magnae, solitariae. - n=7,8; 2n=16.

Syria-Palestine Post 1932

4. *E. billardieri* Laroche (1808)

Plant: (Perennial) (ii. 825). 0.5 to 0.8 m, corymbose above; plant, except lower leaves, amethyst-colored.

Root-leaves: orbicular in outline often 15 to 20 cm broad, 3-5-palmately parted, segments ovate in outline, 2-3-parted into broad, linear lobes, coarsely incised-prickly.

Involucre-leaves: 7-9, alternating with long, needle-like prickles, linear-lanceolate, subulate, prickly below, twice to thrice as long as 1.5 to 2 cm long heads.

Fl.: July, Aug. Alpine and subalpine.

b. Kotschy Boiss. (1872; *E. Kotschy* Boiss. 1856). **Root-leaves** more dissected, often with narrowly linear lobes; **external paleae** sometimes 1-toothed **at** apex-Akac-Dagh, and northward (PH).

Wolff 1913

38. *E. Billardieri* Delar. Eryng. Hist. (1808) 25, t. 2; Tratt. Ausgem. Taf. Archiv. Gewächsk. IV. (1814) t. 322, fig. 1 et 2; Poir. in Lam. Encycl. méth. Bot. Suppl. IV. (1816) 288; DC. Prodr. IV. (1830) 88; Ledeb. Fl. ross. II. (1844) 238; C. B. Clarke in Hook. f. Fl. brit. Ind. II. (1879) 670; Boiss. Fl. orient. II. (1872) 825; Post, Fl. Syria etc. (1896) 330; Bornm. in Bull. Herb. Boiss. 2. sér. VI. (1906) 765. - *E. orientale* Mill. Gard. ed. 8 (1768) n. 6. - *E. coerulescens* Jacquem. ex C. B. Clarke l. c.

Plant: rigid, bluish above, half a meter and more in height.

Stem: robust, remotely leafy, branched above, 4-5-forked at apex, branches repeatedly dichasially divided.

Lower leaves: with petioles about 5-20 cm long, variable in division and size, palmately divided, with elongate segments ± dissected and often somewhat grass-like, or ± distinctly bipinnatifid, primary pinnae broadly decurrent to the rachis and there with serrate-dentate pinnules, teeth ending in a rigid spine;

upper cauline leaves: sessile, trisect, tripartite or palmatipartite, segments 2-3-fid above.

Primary prophylls: very rigid, anteriorly produced into 3 very long spine-pointed teeth, remaining ones smaller, simpler.

Capitula: variable in size, ovoid-globose, shortly and thickly pedunculate;

involucral bracts: very rigid, subulate or linear-lanceolate, 1-4 cm long, ending in a very rigid and

sharp spine, unarmed or sparsely and shortly spiny, at base augmented with single or compound spines up to 10 mm long, pointing downward;

floral bracts: all entire and spine-pointed at apex or outer ones tricuspidate, up to 10 mm long.

Sepals: lanceolate-ovate, somewhat acute, shortly mucronate;

petals: pale azure, oblong, papillulose, provided with an inflexed lobe of nearly equal length, 2-3 times narrower, dilated and fimbriate at apex, about 1½ mm long.

Fruit: compressed-turbinate;

mericarps: compressed from the back;

lateral scales: few or rather numerous, lanceolate, curved, very acute, dorsal scales very numerous, flattened-rounded, calycine scales 4-5, 2-3 times larger than dorsal ones.

Province of the Caucasus. - Middle and Armenian-Iranian Mediterranean province. - Central Asia: Province of the extratropical Himalaya; ascending in high mountains to 2500 m.

Planta rigida superne coerulea, semimetralis et ultra alta. Caulis validus, remote foliosus, superne ramosus, apice 4-5-furcatus, ramis pluries dichasialiter divisus. Folia inferiora ca. 5-20 cm longe petiolata, quoad partitionem et magnitudinem varia, palmatisecta, segmentis elongatis ± dissectis et saepe subgramineis, aut ± manifeste bipinnatifida, pinnis primariis ad rhachin late decurrentibus ibique cum pinnulis serrato-dentatis, dentibus in spinam rigidam excurrentibus; caulina superiora sessilia, trisecta, tripartita vel palmatipartita, segmentis superne 2-3-fidis. Prophylla primaria rigidissima, antice in dentes 3 longissimos spinoso-acutissimos producta, cetera minora, simpliciora. Capitula quoad magnitudinem varia, ovoideo-globosa, breviter et crasse pedunculata; bracteae involucales rigidissimae, subulatae vel lineari-lanceolatae, 1-4 cm longae, in spinam rigidissimam acutissimamque excurrentibus, inermes vel parce breviterque spinosae, basi spinis singulis vel compositis, usque 10 mm longis, deorsum spectantibus auctae; florales omnes integrae apice spinescentes vel exteriores tricuspidatae, usque 10 mm longae. Sepala lanceolato-ovata, acutiuscula, breviter mucronata; petala pallide azurea, oblonga, papillulosa, lobulo inflexo subaequilongo, 2-3-plo angustiore, apice dilatato et fimbriato instructa, ca. 1½ mm longa. Fructus compresso-turbinatus; mericarpi a dorso compressa; squamae laterales paucae vel subnumerosae, lanceolatae, curvatae, acutissimae, dorsales numerosissimae, applanato-rotundatae, calycinae 4-5 quam dorsales 2-3-plo majores.

Provinz des Kaukasus. - Mittlere und armenisch-iranische Mediterran-provinz. - Central-Asien: Provinz des extratropischen Himalaya; in den Hochgebirgen bis 2500 m hochsteigend.

Wolff 1913 - ssp kotschyi

Subspec. 1. Kotschy Boiss. - E. Kotschy Boiss. Diagn. ser. II. 5. (1856) 97. - E. Billardieri B. Kotschy Boiss. Fl. orient. I. c. - E. digitifolium Stapf et Wettst. in Stapf, Beitr. Fl. Lyc. etc. II. (1886) 26 (in Denkschr. Akad. Wien LI. pg. 370).

Basal leaves: supported by a petiole up to 15 cm long, broad, flat, naked below, spinulose- or spinose-laciniate above, duplicate-palmately 3-5-partite, primary segments very elongate, narrow, secondary segments abbreviated, often very narrow;

lower cauline leaves: similar to basal ones, segments not rarely longer and more rigid, upper leaves simply palmate.

Capitula: up to 25 mm long;

involucral bracts: numerous, very rigid, very acute, up to 5 cm long, spinose-serrate or strongly spiny, floral bracts often augmented with a tooth above or tricuspidate.

Folia basalia petiolo usque 15 cm longo, lato, plano, inferne nudo, superne spinuloso- vel spinoso-lacinato fulta, duplicato-palmato-3-5-partita, segmentis primariis valde elongatis, angustis, secundariis abbreviatis, saepe angustissimis; caulina inferiora bas. similia, segmentis haud raro longioribus rigidioribusque, superiora simpliciter palmata. Capitula usque 25 mm longa; bracteae involucales numerosae, rigidissimae, acutissimae, usque 5 cm longae, spinoso-serratae vel valide spinosae, florales superne saepe dente auctae vel tricuspidatae.

Auf den Hochgebirgen Kleinasien, Armenien und Persien: Cilicischer Taurus!! (Kotschy, It. cilic. n. 241; Siehe, It. cilic. n. 185, 205; Wolff, It. anatol. I. n. 340, II. 186); Cappadocien: Masmeno-Dagh (Balansa, Pl. d'Or. n. 658); Cataonien (Haussknecht); Lycien: Rahat-Dagh (Luschan); Türkisch-Armenien: Sipikor-Dagh (Sintenis, It. or. n. 3212); Persien: Kuh-Dätschek (Stapf).

Wolff 1913 - ssp nigromontanum

Subspec. 2. nigromontanum (Boiss. et Buhse) Wolff. - E. nigromontanum Boiss. et Buhse, Aufz. Pfl. Reise Transk. Pers. (1860) 95. - E. Billardieri γ. meiocephalum Boiss. Fl. or. I. c. - E. orientale Stapf et Wettst. in Stapf, Ergeb. Polak Exped. Pers. II. (1886) 47 (in Denkschr. Acad. Wien LI. pg. 315).

Leaves: medium-sized, abruptly petiolate, petiole unarmed, decurrently bipinnatifid or biternately

divided, pinnules narrow or rather broad, abbreviated, rather densely spinose-dentate-serrate.

Capitula: smaller, often scarcely equaling a hazelnut;

involucral bracts: linear or linear-subulate, scarcely or \pm long exceeding the capitula;

floral bracts: entire.

Folia mediocria abrupte petiolata, petiolo inermi, decursive bipinnatifida vel biternatisecta, pinnulis angustis vel latiusculis, abbreviatis, satis dense spinoso-dentato-serratis. Capitula minora, saepe avellanam vix aequantia; bractee involucrales lineares vel lineari-subulatae, capitula vix vel \pm longe superantes; florales integrae.

Syrien, subalpine und alpine Region des Libanon und Antilibanon (Peyron, Fl. syr. n. 1132; Bornmüller, lt. syr. n. 616; Blanche, Libanon n. 3209; Gaillardot, Syr. n. 1827; Boissier); Kurdistan (Haussknecht); Türkisch-Armenien (Sintenis, lt. or. n. 2859, 3242); Russisch-Armenien (Szovits, Nakitschewan n. 572); Talysch (Hohenacker); in Persien weit verbreitet: Karadagh (Szovits); Provinz Ghilan (Alexeenko n. 328); Täbriz (Bunge; Buhse); Elbursgebirge (Bornmüller, lt. pers.-turc. II. n. 7157-59); Südostpersien, auf dem Schuturunkul (Strauss, Pl. Pers. mer. or. n. 1292); Kaschmir (Meebold, Fl. N.W. Himalaya n. 3387).

Transcription: AI then checked against image then winmerge-checked against OCR

Flora of British India 1879

2. E. Billardieri, Delaroche Eryng. 25, t. 2; **radical leaves** long-petioled 3-partite segments 3-fid or pinnatifid spinous-toothed, **cauline** sessile palmately 3-5-partite. DC. Trodr. iv. 88; Boiss. Fl. Orient, ii. 825. E. Kotschy, Boiss. Diagn. ser. 2, v. 97. E. caerulescens, Jacquem. Journ.

Geo: Kashmir, alt. 5000-6000 ft. [=1524-1829m]; Jacquemont, Falconer, &c. Ladak; T. Thomson, Scinde; Stocks. - Distrib. Western Asia.

Stem: 6-18 in., erect or branching from the base, corymbose often bluish above.

Radical leaves: 2-4 in. diam., often hastate; petiole 2-4 in.; lower cauline sometimes similar but short-petioled.

Bracts: 5-7, 1 in., linear, with few or 0 spines on the margins; short spines alternate with and somewhat exterior to the bracts;

bracteoles: linear, spinulose, simple, exceeding the flowers.

Calyx-tube: with lanceolate scales, teeth lanceolate-subulate spinescent.

Fruit: 1/8 in.

Note: The Indian examples are all smaller with smaller heads than the type-specimens of E. Billardieri and are perhaps Var, meiocephalum, Boiss. l. c. The bracts are frequently without spines, but the radical leaves are not narrowly dissected enough for E. Heldreichii, Boiss. l. c. 826. The radical leaves early disappear, it is then much like E. caeruleum but can generally be distinguished by its much less strict stem and dissected lower cauline leaves.

bithynicum

PoWo - Turkey only

Flora of Turkey 1972

10. E. bithynicum Boiss. in Ann. Sci. Nat. ser. 3, 1:123 (1844). Map 47, p. 295.

Plant: Annual or biennial.

Stem: angled and sulcate, 15-20 cm, branched from below the middle.

Basal leaves: often withering at flowering time, subcoriaceous, ovate-oblong to trilobed, crenate-muticous.

Median cauline leaves: sessile, pinnatifid to palmatifid into lanceolate spinulose-margined lobes.

Inflorescence: glaucous or bluish, richly paniculate and domed;

capitula: numerous, less than 15-flowered, hemispherical, 6-10 mm diam.

Bracts: 5(6), lanceolate, flat, pungent, usually spinulose-margined, 2-3(4) x capitulum.

Bracteoles: tricuspidate.

Fl.: 6-9. Steppe, fallow fields, eroded banks, 100-1400 m.

Type: [Turkey A2(A) Bursa] in dumosis montis Arganthonii inter Ghemlek et Broussam (Bursa), Aucher.

Geo: Central and adjacent N. & S. Anatolia. A2(A) A3 A4 A5 A6/B6 B2 Kütahya: Tavşanlı to Emet, 800 m; B3 Eskişehir: Sivrihisar, 950 m; B4 Ankara B5 B6 C4 Konya: Çarıklar; C5 Konya. Endemic, Ir.-Tur. element.

Note: Remarkable for its angled, sulcate stem. Allied to the W. Mediterranean E. triquetrum Vahl.

Wolff 1913

22. E. bithynicum Boiss. in Ann. sc. nat. sér. 3. Bot. I. (1844) 123 et Fl. orient. II. (1872) 828.

Plant: Glaucous-amethystine, half a meter tall, furnished with an elongate-napiform root.

Stem: divaricately branched, at apex 3-5-forked, with spreading branches, twice or thrice trifurcate-branched, then produced into an oligocephalous monochasium.

Leaves: thinly coriaceous, lower ones long-petiolate, older basal ones undivided, subcordate-ovate or oval-oblong, margin remarkably squarish-crenate, with muticous crenations, about 4-5 cm long, 2-3 cm wide,

younger ones (later arising) and lower cauline ones: deeply trilobed or trisect, with middle lobe oblong-oval more produced than the lateral oblique-ovate ones, all spinulose-serrate-crenate, with teeth ± overlapping each other;

subtending ones: sessile with ± dilated base, oblong, spinose-lacerate or deeply spinose-serrate; uppermost ones and primary prophylls palmately 5-7-parted or pinnatifid.

Capitula: semiglobose pauciflorous ± 10 mm wide;

involucral bracts: 5-6 rigid, linear or subfoliaceous, flat, long spinose-acuminate, margin unarmed or more often remotely spinulose, twice as long as capitula;

floral ones: rather broad, equaling or exceeding flowers, half as long as fruits.

Sepals: narrowly ovate, ± acuminate, long mucronate, 1-3-nerved, nerves conspicuously transversely veined, 2-2.5 mm long;

petals: blue, (ovate-)oblong, papillose, furnished with an equally long inflexed lobule, narrowly sublinear, with obtuse apex, about 2 mm long.

Fruit: subampullaceous, attenuate above into a neck, 8-9 mm long, below densely covered with utricular or flattened scales, subequal among themselves or with larger ones somewhat seriate alternating with smaller ones, naked at the neck.

Geo: Asia Minor zone of the central Mediterranean province: On steppes, pastures and fields, along

roads, ascending into the subalpine region, often (together with *E. campestre* var. *virens*) completely dominating the vegetation for long distances!! - Bithynia!! (Boissier; Dingler); Phrygia!! (Warburg et Endlich, It. phryg. I. n. 1021, 1069, 1152; Wolff, It. anatol. I. n. 145); Cappadocia (Bornmüller, Pl. Anatol. or. n. 1786); Lycaonia: Eregli (Wolff, It. anat. I. n. 195); Galatia; Paphlagonia: Tossia (Sintenis, It. or. n. 4563); Pontus; probably widespread throughout Anatolia.

Glaucescens-amethystinum, semimetrale, radice elongato-napiformi instructum. Caulis divaricatim ramosus, apice 3-5-furcatus, ramis patulis, bis vel ter trifurcato-ramulosis, dein in monochasium oligocephalum productis. Folia tenuiter coriacea, inferiora longe petiolata, basalia vetustiora indivisa, subcordato-ovata vel -ovali-oblonga, margine eximie subquadrato-crenata, crenis muticis, ca. 4-5 cm longa, 2-3 cm lata, juniora (serius exorta) et caulina inferiora profunde triloba vel trisecta, lobo medio oblongo-ovali quam laterales obliquo-ovales magis producto, omnibus spinuloso-serrato-crenatis, dentibus sese ± obtegentibus; fulcrantia basi ± dilatata sessilia, oblonga, spinoso-lacera vel profunde spinoso-serrata; summa et prophylla primaria palmato-5-7-partita vel pinnatifida. Capitula semiglobosa pauciflora ± 10 mm lata; bracteae involucrales 5-6 rigidae, lineares vel subfoliaceae, planae, longe spinoso-acuminatae, margine inermes vel saepius remote spinulosae, capitulis 2-plo longiores; florales latiusculae, flores aequantes vel superantes, fructibus dimidio breviores. Sepala anguste ovata, ± acuminata, longe mucronata, 1-3-nervia, n. conspicue transversim venosis, 2-2.5 mm longa; petala coerulea, (ovato-)oblonga, papillulosa, lobulo inflexo aequilongo, anguste sublineari, apice obtuso instructa, ca. 2 mm longa. Fructus subampullaceus, superne in collum attenuatus, 8-9 mm longus, inferne squamis utriculosis vel applanatis, inter sese subaequalibus vel majoribus subseriatis cum minoribus alternantibus dense obsitus, ad collum nudus.

Kleinasiatische Zone der mittleren Mediterranprovinz: Auf Steppen, Triften und Äckern, an Wegen, bis in die subalpine Region aufsteigend, oft auf weite Strecken hin (zusammen mit *E. campestre* var. *virens*) das Vegetationsbild vollständig beherrschend!! - Bithynien!! (Boissier; Dingler); Phrygien!! (Warburg et Endlich, It. phryg. I. n. 1021, 1069, 1152; Wolff, It. anatol. I. n. 145); Cappadocien (Bornmüller, Pl. Anatol. or. n. 1786); Lykaonien: Eregli (Wolff, It. anat. I. n. 195); Galatien; Paphlagonien: Tossia (Sintenis, It. or. n. 4563); Pontus; wahrscheinlich durch ganz Anatolien weit verbreitet.

Transcription: AI then checked against image then winmerge-checked against OCR

bornmuelleri

[PoWo](#) - Turkey, Iran

Flora of Turkey 1972

5. *E. bornmuelleri* Nab. in Publ. Fac. Sci. Univ. Masaryk Brno 35: 118, 119, t. 12 (1923).

Plant: Tall perennial.

Stems: 1-1.5 m, branched above.

Basal leaves: persistent, coriaceous, broadly cordate to triangular-cordate, 12-20 x 15-22 cm, crenate-dentate.

Median cauline leaves: smaller, shortly petiolate to subsessile;

uppermost: ovate, amplexicaul.

Inflorescence: bluish, corymbose-paniculate;

capitula: 5-11, ovate-globose, 15-25 mm diam.

Bracts: 7-9, subfoliose, ovate-lanceolate, pungent-acuminate, sparsely spinulose below, 0.5-1.5 x capitulum.

Bracteoles: all entire.

Fl.: 8-9. Rocky slopes, 2500-2740 m.

Type: [Turkey C9/10 Hakkari] Gelo-Dar (Cilo Da.) dit. Gulamerik, ad tentamina aestiva Djezra, 6 ix 1910, Nabélek 362 (BRA).

Geo: S.E. Anatolia. C9 Hakkari: Cilo Da. below Cilo Y. (above Diz De.), 2740 m

Note: Endemic. Ir.-Tur. element. A very distinct species, perhaps nearest to *E. giganteum*.

Flora Iranica 1987

2. *E. Bornmuelleri* NAB., Publ. Fac. Sci. Univ. Masaryk (Brno) 35: 118, 119 (1923). Icon.: NAB, l.c.: tab. 12. - Tab. nostr.: 7. Typus: Kurdistania

turcica, distr. Hakkari, Gelo Dagħ (Cilo Dagħ) dit. Gulamerik, ad tentamina aestiva Djezra, in graminosis, 2500 m, NABELEK 362, BRA.

Plants: Perennial, polycarpic (?).

Stems: few, erect, 1-1.5 m tall, striate, glaucous at base, bluish in upper part, branched.

Leaves: entire;

basal ones: long-petiolate, petioles glaucous-green, white-striate, up to 35 cm long, blades coriaceous, glabrous, reticulate-veined, reniform or broadly cordate or triangular-cordate, 12-20 x 15-22 cm, obtuse, margin obtusely crenate, unarmed;

lower cauline: subsessile, sheathing or shortly petiolate, petioles dilated, blades rounded, deeply cordate.

Synflorescence: broadly paniculate or corymbose, subtending leaves sessile, amplexicaul, blue, ovate in outline, coarsely dentate at base.

Diploscia: ovate-globose, large, up to 2.5 cm in diameter, peduncles thickened, 3-4 cm long.

Bracts: 7-9, ample, ovate-lanceolate, apex acuminate, somewhat leaf-like, incised-dentate from base to middle, teeth very acute, pungent, up to 4 mm long, blue, one-third or nearly twice as long as the diploscia.

Bracteoles: entire, lanceolate, pungent, up to 12 mm long, approximately equalling the flowers.

Calyx: teeth linear-lanceolate, mucronate, margin glabrous.

Fruits: scarcely compressed dorsally, scales unequal, lanceolate, apex acuminate, surface flattened.

Mericarps: sometimes dimorphic: one with 4 larger commissural vittae of which one smaller, the other with three larger and two smaller.

(Claude)

Plantae perennes, polycarpicae (?).

Caules pauci, recti, 1-1.5 m alti, striati, basi glauci, in parte superiore coerulescentes, ramosi.

Folia integra; radicalia longe petiolata, petiolis glauco-virentibus, albostratis, ad 35 cm longis, laminis coriaceis, glabris, reticulato-venosis, reniformibus vel late cordatis vel triangulato-cordatis, 12-20 x 15-22 cm, obtusis, margine obtuse crenatis, inermibus; caulina inferiora subsessilia, vaginata vel breviter petiolata, petiolis dilatatis, laminis rotundatis, profunde cordatis.

Synflorescentia late paniculata vel corymbosa, foliis fulcrantibus sessilibus, amplexicaulibus, coeruleis, ambitu ovatis, basi grosse dentatis.

Diplosciadia ovato-globosa, magna, ad 2.5 cm diam., pedunculis incrassatis, 3-4 cm longa.

Bracteae 7-9, amplae, ovato-lanceolatae, apice acuminatae, subfoliaceae, a basi ad medium inciso-dentatae, dentibus acutissimis, pungentibus, ad 4 mm longis, coeruleis, diplosciadiis tertia parte vel subduplo longiores.

Bracteolae integrae, lanceolatae, pungentes, ad 12 mm longae, flores subaequantes.

Dentes calycini lineari-lanceolati, mucronati, margine glabri.

Fructus dorso vix compressi, squamis inaequalibus, lanceolatis, apice acuminatis, facie tabulatis.

Mericarpi interdu biformia: unum vittis jugalibus 4 majoribus quarum una minore, alterum tribus majoribus et duobus minoribus.

Distr. gen.: Anatolia orientalis, Persia boreo-occidentalis.

bourgatii ssp heldreichii

See under heldreichii

caeruleum

PoWo - Afghanistan, Iran, Kazakhstan, Kirgizstan, North Caucasus, Pakistan, Tadzhikistan, Transcaucasus, Turkmenistan, Turkey, Uzbekistan, West Himalaya

Flora of Turkey 1972

8. *E. caeruleum* Bieb., Besch. Land. Flüss. Terek Kur. Kasp. Meere 155 (1800), non Gilib. (1785) nom. illegit., non Link (1821) pro syn. Syn: *E. biebersteinianum* Nevski in Trav. Mus. Bot. Acad. Pétersb. ser. 1, 4:275 (1937). Ic: Basu, Ind. Med. Pl. t. 477 (1918).

Plant: Biennial or perennant, slender.

Stem: 10-30(70) cm.

Outer basal leaves: not persistent, broadly cordate-ovate in outline or 3-lobed, 2-4 cm, 1-1.5 x longer than broad, crenate-muticous;

inner basal leaves: 2-4 cm, pinnately trisect with spiny-lobed segments, withered at flowering time.

Median cauline leaves: sessile, deeply palmatifid into spiny pinnatifid lobes, broader than in *E. creticum*.

Inflorescence: bluish, diffusely and divaricately paniculate;

capitula: (5)10-25, subglobose, 8-15 mm diam.

Bracts: 5, linear, pungent, entire or sparsely spinulose, (2)3-4 x capitulum.

Bracteoles: all subulate-lanceolate.

Fl.: 8. Dry banks, 150-300 m.

Described from Soviet Azerbaijan, prov. Schirvan.

Geo: N.E. Anatolia. A8 Çoruh: Çoruh gorge, between Borçka and Artvin, 150-300 m, D. 32325! B9 Kars: S.E. of Tuzluca (Grossheim 7: map 13). S. Russia, Caucasia, N. & N.W. Iran eastwards to Tibet. Ir.-Tur. element.

Note: Very close to *E. dichotomum* Desf. from S. Spain, S. Italy and N.W. Africa, from which it differs mainly in the form of its heteromorphic basal and lower stem leaves, and usually bluer, more spreading inflorescence. In facies it resembles *E. creticum*, which can be readily distinguished by its tricuspidate bracteoles. Records of *E. caeruleum* from C. Anatolia probably refer to *E. bithynicum*.

USSR 1950

12. *E. biebersteinianum* Nevski in Tr. Bot. Inst. AN SSSR, ser. 1, 4 (1937) 275, nom. - *E. caeruleum* M.B. Tabl. prov. casp. (1798) 112; Ej. Fl. taur.-cauc. I (1808) 200, excl. syn. non Gilib. 1785; Boiss. Fl. or. II, 823; Shmal'g., Fl. I, 384; Voronov in Vestn. Tifl. Bot. Sada, X, 6; Wolff in Pflzr. Heft 61, 130; Grossg., Fl. Kavk. III, 122. - *E. dichotomum* Ldb. Fl. Ross. II (1844) 240, non Desf. - ? *E. caucasicum* Fisch. ex Steud. Nomencl. (1821) 315, nom.; Trautv. in Tr. B.S.I., 23. - *E. amethystinum* auct. Fl. cauc. - Exs.: G.R.F. No. 1768 a,b; Herb. Fl. Cauc. No. 338.

Plant: Perennial; with thick main root, stems to 1m high, usually solitary, spreading-branching above, bluish, leafy;

radical leaves: many, herbaceous or slightly coriaceous, soft, early withering, long-petioled, the blades with cordate or rounded base, 4-6 cm long, 3-4cm wide, oval, entire or 3-lobed, with oblong lobes;

cauline leaves: coriaceous, sessile, 1-4cm long, 2-4mm wide, deeply incised, with spinose-rooted lobes.

Heads: ca. 10mm long and as wide;

leaflets of involucre: 4-6, linear-lanceolate, stiff, strongly declinate, 2 to 4 times as long as the heads, with 1-2 basal spines, sometimes bristly-spiny along margin, with spinose-acuminate apex;

bracts: subulate, the outer sometimes 3-toothed (var. fallax Woron.), longer than flowers;

calyx-teeth: oblong-lanceolate, acuminate; petals ca. 2mm long;

styles: longer than sepals;

fruit: ca. 5mm long, angular, scales lanceolate, long-acuminate, equal.

Fl.: May-July, Fr. July-September.

Hab: Steppes and semideserts, foothill and lower levels of mountains.

Described from: the Shirvan Steppe.

Flora Iranica 1987

11. *E. caucasicum* TRAUTV., Acta Horti Petrop. 1: 23 (1871). Syn.: *E. caeruleum* M.B., Tabl. Prov. Casp. 112 (1798) et Besch. Lind. Terek Kur.: 155 (1800) non GILIB. (1785). *E. Biebersteinianum* NEVSKI, Acta Inst. Bot. Acad. Scienc. URSS. Sér. 1, 4: 275 (1937). *E. pskemense* PAVLOV, Vestn. Akad. Nauk Kazakhstan 3: 30 (1950). *E. creticum* auct. non LAM., e.g. HIROE, Umb. Asia 1: 198 (1958). Icon.: BASU, Ind. Med. Plant.: tab. 477 (1918). TROLL, Vergl. Morph. Fiederbl. 59 (1935). - Tab. nostr.: 19. Typus (syntypi): Prope Derbent, A. BECKER; in Cartalinia, Imeretia et Mingrelia, LAROVSKY. In Abchasia, LAGOWSKI, LE.

Plants: perennial or biennial monocarpic, often suffused with blue.

Stems: solitary, terete, sulcate, with the inflorescence 40-60(100) cm tall, in the upper part dichotomously divaricate, with numerous paracladia, horizontally reflexed, forming a dense corymbose inflorescence.

Radical leaves: herbaceous, quickly deciduous, long-petiolate, with blades ovate in outline, entire or trisect, cordate at base, with oblong lobes, spinose-dentate at margin.

Subtending leaves: sessile, rigid, palmatipartite, with 3-5 lobes, lanceolate, up to 4 cm long, reflexed, spinose.

Diplosciadia: semiglobose, minute, c. 10 mm in diameter.

Bracts: 4-6, linear-lanceolate, subulate, divaricate, sparsely spinulose at margin, three times longer than the diplosciadia.

Bracteoles: entire, subulate, the outer ones \pm distinctly tridentate, longer than the flowers.

Calyx: teeth oblong-lanceolate, acuminate, glabrous at margin.

Fruits: obovate, triangular, with mericarps not compressed on the back, with scales narrowly lanceolate, acute, glabrous, papillate on the face. $n=8$; $2n=16, 28$ (?).

Distr. gen.: Anatolia, Persia, Afghanistan, Pakistan, Himalaya occidentalis, Transcaucasia, Ciscaucasia, Asia Media (Tian Shan occidentalis, Pamir-Alaj occidentalis, Turcomania).

Note: This species is known in the modern floristic literature as *E. Biebersteinianum* NEVSKI or *E. caeruleum* M.B. The name *E. Biebersteinianum* (NEVSKI, l.c.) was suggested because *E. caeruleum* M.B. is a later homonym of *E. caeruleum* GILIB. The description of GILIBERT has been considered as illegitimate (DAVIS, Lc.; NASIR, Lc.) In our opinion, however, there is not sufficient reason for the rejection of the name *E. caeruleum* GILIB. because it was published with a rather verbose diagnosis that is in accordance with the International Code of Botanic Nomenclature. Only GILIBERT's names from the first edition of "Flora lithuanica inchoata..." (1781-1782), in which the Linnean system of binary nomenclature for species is not consistently employed (STAFLEU, Taxonomic Literature 1967: 170), cannot be accepted as effectively published (ICBN. art. 23 sub 3); this rejection does not relate, however, to the edition of 1785 in "Caroli Linnaei botanicorum principis systema plantarum Europae..." and to the edition of 1793 in P. USTERI "Delectus opusculorum botanicorum".

As *E. coeruleum* GILIB. is a synonym of *E. planum* L., this name cannot be used for our plant (*E. caeruleum* M.B.). From the later epithets *E. caucasicum* TRAUTV., rehabilitated by V. AVETISIAN, lc., has priority. She believed in the existence of two closely related species of sect. *Plana* in the Caucasus which can be distinguished by dissection of the blade of the basal leaves (entire in *E. Biebersteinianum*, trisect in *E. caucasicum*). This character, however, is not stable but it varies during the ontogenesis, as our observations in the Botanical Garden have clearly demonstrated. The basal leaves are often absent in herbarium specimens of this species as they have died before the flowering period. There are still some specimens from the various parts of "Flora Iranica" area as well as from Middle Asia and Caucasus, collected at the beginning of the growth period which have trisect basal leaves. Therefore *E. caucasicum* and *E. Biebersteinianum* are two names for the same species and the former has priority.

There is an interesting specimen in LE collected by V. L. LIPSKY in Northern Iran, prov. Gilan; it is like *E. caucasicum* in all characters with one exception: it has trifid bracteoles as in *E. creticum*.

(Claude)

Plantae perennes vel biennes monocarpicae, saepe coeruleo-suffusae. Caules solitarii, teretes, sulculati, cum synflorescentia 40-60(100) cm alti, in parte superiore dichotome divaricati, paracladiis numerosis, horizontaliter reflexis, synflorescentiam densam corymbosam formantibus. Folia radicalia herbacea, cito decidua, longe petiolata, laminis ambitu ovalibus, integris vel trisectis, basi cordatis, lobis oblongis, margine spinoso-dentatis. Folia fulcrantia sessilia, rigida, palmatipartita, lobis 3-5, lanceolatis, ad 4 cm longis reflexis, spinosis. Diplosciadia semiglobosa, minuta, c. 10 mm diametro. Bracteae 4-6, lineari-lanceolatae, subulatae, divaricatae, margine sparse spinulosae, diplosciadiis triplo longiores. Bracteolae integrae, subulatae, externae ± distincte tridentatae, floribus longiores. Dentes calycini oblongo-lanceolati, acuminati, margine glabri. Fructus obovati, triangulares, mericarpiis dorso non compressis, squamis anguste lanceolatis, acutatis, glabris, facie papillatis. n=8; 2n=16, 28 (?).

Flora of British India 1879

1. *E. caeruleum*, Bieb. Fl. Taur. Cauc. i. 200, excl. syn.;

radical leaves: long-petioled cordate-oblong undivided crenate not spinulose,

upper cauline: sessile palmately divided into lanceolate spinulose segments.

Boiss. Fl. Orient. ii. 823. - *E. planum*, Lindl. in Royle III. 232, not of Linn.

Geo: Kashmir, alt. 5000-6000 ft. [=1524-1829m]; Falconer, T. Thomson, Levinge. - Distrib. Cabul, Persia, Turkestan.

Stems: 2-3 ft., erect, undivided below, corymbose and often bluish above.

Radical leaves: 5 by 1.75 in., petiole 2-6 in.;

lower cauline: often similar smaller with shorter petioles, but more often subsessile, elliptic, acute, undivided, serrate or subspinulose.

Bracts: 5-6, 1 in., linear, with a few spines on the margins, sometimes short exterior spines alternating with them;

bracteoles: linear, spinulose, simple, exceeding the flowers; a few (in the outermost row but one) sometimes spinous, subtrifid.

Calyx-tube: densely scaly; teeth lanceolate-subulate, spinescent.

Fruit: 1/8 in.

Note: This has been referred to *E. dichotomum*, Desf. which has the radical leaves oblong entire not spinulose and altogether differs. It is certainly Boissier's plant referred by him to Biebersteins.

Indian Medicinal Plants 1935

1. *Eryngium coeruleum* Bieb. Fl. Taur. Cauc. I. 200 (excl. syn). - Plate 477A.

Stem: 0.6-0.9 m. high, undivided below, often bluish above.

Basal leaves: 12.5 by 4.5 cm, long-stalked, cordate-oblong, undivided, crenate, non-spiny, stalk 5-15 cm long;

upper stem-leaves: stalkless, palmately divided into lance-shaped slightly spinous segments.

Bracts: 5-6, 2.5 cm long, linear, with a few spines on the margin.

Bracteoles: linear, slightly spiny, simple, reaching beyond the flowers, a few sometimes spinous.

Calyx-tube: densely scaly, teeth lance-awl-shaped, spiny.

Fruit: 3 mm. long

567. *Eryngium caeruleum*, Bieb. H.F.B.I., II. 669.

Plant: A spinescent, glabrous, erect, perennial herb.

Stem: 2-3 ft, undivided below, corymbose and often bluish above.

Radical leaves: 5 by 1.75 in., petiole 2-6 in.;

lower cauline: often similar, smaller, with shorter petioles, but more often sessile, elliptic acute, undivided, serrate or subspinulose.

Upper cauline: sessile palmately divided into spinulose segments.

Bracts: 5-6, 1 in., linear, with a few spines on the margins, sometimes short exterior spines alternating with them;

bracteoles: linear, spinulose, simple, exceeding the flowers; a few (in the outermost row but one) sometimes spinous, subtrifid.

Calyx tube: densely scaly; teeth lanceolate-subulate, spinescent.

Fruit: 1/8 in.

Wolff 1913

19. *E. coeruleum* Marsch.-Bieb. Tabl. prov. casp. (1798) App. pg. 112 et Besch. Länd. zw. Terek u. Kur (1800) 155, App. n. 29 et Fl. taur.-cauc. I. (1808) 200, excl. syn.; Boiss. in Ann. sc. nat. 3. sér. Bot. I. (1844) 122 et Fl. orient. II. (1872) 823; C. B. Clarke in Hook. f. Fl. brit. Ind. II. (1879) 669; Schmalh. Fl. ssred. i južn. Ross. I. (1895) 384; Woronow in Monit. jard. bot. Tifl. X. (1908) 6; Herb. Willd. n. 5574. - *E. dichotomum* Ledeb. Fl. ross. II. (1844) 240. - ? *E. caucasicum* Fisch. ex Steud. Nomencl. ed. 1. (1821) 315; Trautv. in Act. Hort. Petrop. I. (1871) 23.

Plant: tall, up to one meter, bluish especially above, provided with a thick, elongate-napiform root.

Stem: usually solitary, strict, remotely leafy, divaricately branched above, at apex very widely 4-5-forked, with branches greatly elongated, twice or thrice trifurcate-branched.

Basal leaves: rather numerous, all long-petiolate, outer (older) ones soon dying, cordate, cordate-ovate or -oblong, undivided, 4-5 cm long, 3-4 cm wide,

inner (arising later): three-lobed or three-parted, with oblong segments, not rarely 2-3-lobed, middle segment more produced than lateral ones and somewhat petiolulate, all crenate or serrate-crenate;

cauline leaves: gradually more divided than basal ones,

subtending leaves: deeply palmately 5-parted, with divaricate, narrow, pungent-spinose-serrate segments, 1-3 cm long, 2-3 mm wide.

Heads: rather small, few-flowered, approximately 10 mm wide;

involucral bracts: 4-6, rigid, very spreading, approximately linear-lanceolate, several times longer than heads, with 1-2 spinules on lower margin, otherwise unarmed or sparsely setose-spinulose, with very spinose-acute apex, 2-3 cm long, 2-4 mm wide;

floral bracts: subulate, entire or outer ones according to distinguished Woronow three-cuspidate, far exceeding flowers.

Sepals: narrowly lanceolate;

petals: papillose, oblong, provided with inflexed sublinear lobe of approximately equal length or shorter, with fimbriate apex, 2 mm long;

styles: far exceeding sepals.

Fruit: angularly turbinate, approximately 5 mm long;

scales: calyx scales and lateral scales lanceolate, long-acuminate, approximately equal in size, dorsal scales similar to those but smaller or absent.

...**Note:** Distinguished Woronow l.c. described var. *fallax* in these words: all of the type except for some outer paleae increased by 1-2 spinose teeth on each side at apex. - Transcaucasia (Government of Tiflis); Talysch (Lenkoran) and northern province Gilan of Persia. - Specimens not seen by me.

Planta elata, usque metralis, imprimis superne coerulea, radice crassa, elongato-napiformi instructa. Caulis plerumque solitarius, strictus, remote foliatus, superne divaricatum ramosus, apice patentissime 4-5-furcatus, ramis valde elongatis, bis vel ter trifurcato-ramulosis. Folia basalia subnumerosa, omnia longe petiolata, exteriora (vetustiora) mox emorientia, cordata, cordato-ovata vel -oblonga, indivisa, 4-5 cm longa, 3-4 cm lata, interiora (serius exorta) triloba vel trisecta, segmentis oblongis, haud raro 2-3-lobulatis, medio quam lateralia magis producto subpetiolulato, omnibus crenatis vel serrato-crenatis; caulina sensim quam basalia magis divisa, fulcrantia profunde palmato-5-partita, segmentis divaricatis, angustis, pungenti-spinoso-serratis, 1-3 cm longis, 2-3 mm latis. Capitula sat parva pauciflora ± 10 mm lata; bractae involucrales 4-6 rigidae, patentissimae, ± lineari-lanceolatae, capitulis pluries longiores, margine infero 1-2-spinulosae, cetero inermes vel parce setoso-spinulosae, apice spinoso-acutissimae, 2-3 cm longae, 2-4 mm latae; florales subulatae, integrae vel exteriores ex cl. Woronow tricuspidatae, flores longe superantes. Sepala anguste lanceolata; petala papillulosa, oblonga, lobulo inflexo sublineari, subaequilongo vel brevior, apice fimbriato instructa, 2 mm longa; styli sepala longe superantes. Fructus anguloso-turbيناتus ± 5 mm longus; squamae calycinae laterales lanceolatae, longe acuminatae, subaequimagnae, dorsales illis subconformes minores vel nullae.

...Nota. Cl. Woronow l.-c. 8 var. *fallax* his verbis descripsit: omnia typi praeter paleas externas nonnullas apice utrinquo dentibus spinosis 1-2 auctas. - Transcaucasia (Guv. Tiflis); Talysch (Lenkoran) et Persiae sept. prov. Ghilan. - Specimina mihi non visa.

Transcription: Al then checked against image then winmerge-checked against OCR

campestre (2 vars)

PoWo (species)

PoWo (var. *campestre*) - **Native:** Albania, Algeria, Austria, Balears, Belgium, Bulgaria, Central European Russia, Corse, Czechia-Slovakia, France, Germany, Greece, Hungary, Italy, Kriti, Krym, Morocco, Netherlands, North Caucasus, Poland, Portugal, Romania, Sardegna, Sicilia, South European Russia, Spain, Switzerland, Transcaucasia, Turkey, Turkey-in-Europe, Ukraine; **introduced:** Denmark, Great Britain, Maryland, New Jersey, New Zealand North, New Zealand South, Québec, Sweden

PoWo (var. *virens*) - Albania, Algeria, Cyprus, East Aegean Is., Egypt, Greece, Iran, Iraq, Kriti, Lebanon-Syria, Libya, Morocco, NW. Balkan Pen., Portugal, Sicilia, Sinai, Spain, Tunisia, Turkey

Flora of Turkey 1972

E. campestre L., Sp. Pl. 233 (1753). Ic: Fiori, Ic. Fl. Ital. f. 2232 (1899).

Plant: Rigid perennial (or monocarpic?), with a fibrous collar.

Stem: usually solitary, 30-60 cm, terete, widely branched from about the middle.

Basal leaves: persistent, triangular-ovate in outline, 10-25 x 10-18 cm, coriaceous, mostly ternate with spreading bipinnatifid primary segments, the lobes and winged rachis spiny-dentate (juvenile leaves simple to trifoliate).

Cauline leaves: smaller, the median and upper ones with a broad, subamplexicaul, spiny-margined base, those of the inflorescence mostly tripartite.

Inflorescence: yellowish-green or sometimes glaucous, forming a widely spreading, corymbose panicle;

capitula: numerous, ovoid-globose, 7-13 mm diam.

Bracts: 5-6, linear-lanceolate to -subulate, pungent, straight, entire or with the margin remotely spinulose, 1.5-3 x capitulum.

Bracteoles: entire, longer than sepals.

Mericarps: covered with lanceolate, very acute scales.

Fl.: 7-9. Open woodland, stony hillsides, disturbed steppe, fallow fields, dunes, s.l.-1800 m.

var. *campestre*: 1. **Inflorescence** glaucescent; **bracts** linear-lanceolate (narrowed only towards tip), ± flat, 2-4 mm broad, with conspicuous reticulate venation, margin often remotely spinulose -- N.W. & W. Turkey. A1(E) A2(A) B1

var. *virens*: 1. **Inflorescence** yellowish-green; **bracts** linear-subulate (narrowed from base to tip), subtriquetrous, usually 1-2 mm broad, with inconspicuous reticulate venation, margin usually entire -- Widespread in the drier areas.

Distribution of species: W., C. and S. Europe, C. & S. Russia, Crimea, N. Africa, S.W. Asia eastwards to Afghanistan. Var. *virens* is more southern and eastern in its general distribution than the mainly European var. *campestre*, but the two overlap extensively in S. Europe. Nearly all Anatolian and Island records for the species (without reference to variety) probably belong to the more xeromorphic var. *virens*, which is an invasive weed in disturbed habitats. Turkish records for the larger closely related *E. noeanum* Boiss. should also be referred to *E. campestre* var. *virens*, though it is possible that the former species (which grows in W. Iran and N. Iraq) may be discovered in S.E. Anatolia.

Syria-Palestine Post 1932

E. campestre L. (1753) Field E.; skakdkil (Forsk. p. lxiv. 167)

Plant: (Perennial) ... 50 cm glaucous-green, corymbose above.

Leaves: coriaceous, the radical ovate in outline, 3-5-palmatisect, with decurrent, pinnatisect, prickly-toothed or incised, more or less overlapping segments, the

stem-leaves: auricled-clasping, 2- pinnatisect, prickly-toothed.

Involucre-leaves: 5-7, linear to linear-lanceolate, subulate, 2-4-prickly at base, twice to twice and a half as long as .012 to .015 long head.

Fl.: June-Sept. Dry and barren fields.

Sell3 2009

4. *E. campestre* L. Field Eryngo *E. vulgare* Lam.

Plant: Perennial monoecious herb with a tap-root.

Stems: 30-60 cm, pale greyish-green, erect, rigid, solid, glabrous, branched, leafy.

Leaves: coriaceous, greyish-glaucous on upper surface, paler beneath;

basal: 5-20 × 5-15 cm, triangular-ovate in outline, acute at apex, pinnately divided almost to midrib, the primary divisions decurrent on the rhachis, the lobes oblong, spinose-serrate, with a thick, prominent midrib ending in a stout spine and with a thick, cartilaginous margin, the petiole unwinged and about as long as the lamina;

cauline: progressively smaller upwards and less divided, with a broad, spiny-margined, sessile, semi-amplexicaul base.

Inflorescence: of numerous, pedunculate, ovoid heads 10-15 mm in diameter;

bracts: 5-8, 1.5-3.0 times as long as the heads, linear-lanceolate, spinose at apex, entire or with 1(-2) pair of lateral spines;

bracteoles: entire, longer than the flowers.

Sepals: 5, about 2.5 mm, longer than the petals, lanceolate, with a prominent midrib which is excurrent as a stout spine.

Petals: 5, white, emarginate at apex.

Stamens: 5; filaments white; anthers pale yellow.

Styles: 2, about 4 mm, divergent to somewhat recurved, slightly thickened at the base; stigma tapering.

Ovary: with a more or less flat disc at the apex.

Schizocarp: about 5 mm, obovate, scarcely compressed, densely covered in very acute, white scales; commissure broad; carpophore absent; vittae very slender.

Flowers 7-8. $2n = 14, 28$.

Hab: Long introduced. Open habits, mostly near the sea, especially calcareous.

Note: First recorded by John Ray in Devonshire in 1662. Now established in a few places in south and south-west Great Britain, casual elsewhere in Great Britain and the Channel Islands north to Northumberland. Rare in south and central Europe, North Africa and south-west Asia. European Southern-temperate element.

USSR 1950

Key fragment -

5a. Plant grayish-green; blades of lower leaves broadly ovate or sub-orbicular, 10-30 cm long and wide -- 6

5b. Plants very pale or bluish-gray; lower leaves ovate or triangular, 4-10 cm long and wide -- 7
[PoWo this goes to *Eryngium billardierei* F.Delaroche]

6a. Main axis of stem and inflorescence elongate; lobes of lower leaves broadly decurrent along axes, especially the central axis nearly winged, dentate -- 2. *E. noëanum* Boiss.

6b. Main axis of stem and inflorescence shorter than lateral branches; lobes of lower leaves faintly decurrent, axes not winged -- 3. *E. campestre* L.

7a. Plant bluish-gray, lower leaves with amplexicaul petioles exceeding blade by half; blade broadly ovate, 6-10cm long, with broad profusely and acutely spinose-dentate lobes (S. and E. Transcaucasia) -- 4. *E. nigromontanum* Boiss. et Buhse [PoWo has this as *Eryngium billardierei* F.Delaroche].

7b. Plant very pale, petioles of lower leaves hardly broadened at base, 2 to 3 times as long as the blade; blade triangular, 4-6 cm long, with narrow, largely spinose-dentate lobes (Greater Balkhan in Mtn. Turkm.) -- 5. *E. balchanicum* Bobr [PoWo has this as *Eryngium billardierei* F.Delaroche].

Flora Kavkaza 1967

Note: In "Flora of the USSR" *E. noëanum* Boiss. is cited for Southern Transcaucasia based on collections by Andronaki (Turkish Armenia, Artvin Province) and S. G. Tamamshyan and An. A. Fedorov (Armenia, vicinity of village Artik). The latter specimen in the herbarium was marked as *E. sapphirinum* Tam., but it is completely identical with *E. nigromontanum* Boiss. et Buhse. As for Andronaki's specimens, they are in no way distinguishable from *E. campestre* L.

Примечание. Во «Флоре СССР» для Южного Закавказья приводится *E. noëanum* Boiss. по сборам Андронаки (Турецкая Армения, Артвинская область) и С. Г. Тамамшян и Ан. А. Федорова (Армения, окр. с. Артик). Последний экземпляр в гербарии был отмечен как *E. sapphirinum* Tam., но он совершенно тождествен с *E. nigromontanum* Boiss. et Buhse. Что же касается экземпляров Андронаки, то они ничем не отличимы от *E. campestre* L.

creticum

PoWo - Albania, Bulgaria, Cyprus, East Aegean Is., Egypt, Greece, Iran, Iraq, Italy, Kriti, Lebanon-Syria, NW. Balkan Pen., Palestine, Sinai, Turkey, Turkey-in-Europe

Flora of Turkey 1972

9. *E. creticum* Lam., Encycl. 4:754 (1798). le: Reichb., lc. Fl. Germ. 21: t. 1850 (1863); Fiori, lc. Fl. Ital. f. 2232 (1899). Map 47, p. 295.

Plant: Slender annual or biennial.

Stem: 20-60 cm, branched at or below the middle.

Outer basal leaves: withered at flowering time, 2-3 x 2-2.5 cm, trisect into acutely lobed, spiny-toothed segments.

Cauline leaves: sessile, deeply palmatifid into slender, spiny-pinnatifid lobes.

Inflorescence: glaucous to amethyst, diffusely paniculate;

capitula: up to 40(90), subglobose, 5-10 mm diam., more than 15-flowered.

Bracts: 5, linear-subulate, pungent, spreading, 2-4 x capitulum, sparsely spinulose near base.

Bracteoles: all tri-cuspidate.

Fl.: 7-8(9). Bushy plains, phrygana, fallow fields and waste places, s.l.-750 m.

Geo: Turkey-in-Europe, Outer Anatolia, E. (southern) Anatolia, Islands; common near the coast. A1 A2 A3 A4 A5 A6 A7 B1 B8 C2 C3 C4 C5 C6 C7 C8 C9 Is. Balkans, W. Syria, Syrian Desert, N. Iraq, Cyprus, N. Egypt. E. Medit, element.

Flora Europaea 1968

12. *E. creticum* Lam., *Encycl. Méth. Bot.* 4: 754 (1798).

Plant: Perennial, or sometimes biennial or annual;

stems: (12-)25-100 cm, erect, much-branched above.

Basal leaves: slightly coriaceous, decaying early; lamina 5-15 x 3-15 cm, very variable, oblong-ovate to suborbicular, cordate or truncate at base, undivided and crenate-dentate to 3-sect with 2-pinnatifid segments; petiole 1-2 times as long as lamina, unwinged.

Inflorescence: bluish, very diffuse, with usually numerous pedunculate, globose capitula 0.5-1 cm.

Bracts: 1-3 cm, 5-7, linear-lanceolate, pungent, with 1-2 pairs of spines;

bracteoles: linear-lanceolate, 3-cuspidate.

Sepals: c. 1.5 mm, ovate, mucronate.

Fruit: sparsely scaly, the scales not overlapping.

Hab: Dry places.

Geo: Balkan peninsula and Aegean region, extending northwards to Slovenija. Al Bu Cr Gr Ju Tu [It].

Syria-Palestine Post 1932

9. *E. creticum* Lam. (1797; *E. syriacum* Lam. 1797) Syrian E.; *kurş'anni* (Day), *shawk-ul-'arḳabâni* (P) ۲ (ii. 828; H. i. 616; M. 689; Löw, iii. 475).

Plant: (۲ Perennial), 30 to 50 cm, blue, divaricately much branched, corymbose.

Root-leaves: soon withering, long-petioled, oblong in outline, bipinnatipartite, with cut-toothed, prickly segments;

the stem-leaves: sessile, 3-8-palmatipartite into lanceolate-linear, cut-toothed, prickly divisions.

Involucre-leaves: 5, linear-subulate, with 2 prickles at base, and sometimes others along the margins, 3-4 times as long as the 8 mm long heads.

Fl.: June, July.

Hab: Fields and rocky places.

b. oblongum Post (1896): - Root-leaves undivided, cordate-oblong, doubly crenate, or dentate - Beirut (PH).

c. lobatum Post (1896): - Root-leaves oblong, entire or 2-3-lobed, crenate - Leb. Tripoli (PH).

d. spinulosum Post (1896): - Involucre-leaves prickly to apex; stem-leaves sub-petioled. - Near Ba'albak (PH).

forma umbrosa Bornm: (in litt.). - Stouter, green.-Mt. Carmel (D).

davisii

PoWo - Turkey only

Flora of Turkey 2001 & PDF RBGE 1988

14a.: *E. davisii* Kit Tan & Yıldız in Notes R.B.G. Edinb. 45: 441, f. 1 (1988).

(From those notes, FOT11 matches with minor differences)

Plant: Glabrous perennial with blackish-brown fibrous collar.

Flowering stems: 1-2, 17-20cm, branched only at inflorescence, 2-3 mm diam. at base, sulcate, stramineous.

Basal and lower cauline leaves: persistent, petiolate, coriaceous; lamina \pm suborbicular in outline, 1.5-3 cm, palmately 3-5-partite; segments trisect or dentate, prominently veined, spiny. Petioles (2-)3-4 cm, entire or spiny-winged.

Middle cauline leaves: similar but petioles short, (1-1.5 cm), winged, margins spiny.

Uppermost leaves: 2-4 cm, sessile, trisect or dentate, lanceolate, long-acuminate.

Inflorescence: a dense or lax yellowish-green panicle.

Capitula: 5-7, globose, 1-2 cm diam.

Involucral bracts: 7-9, \pm equal, linear-lanceolate, (2)3-5 cm, c.3 mm at base (excl. marginal spines), 5-7-veined, 2-3 x capitulum, pale green or suffused blue.

Bracteoles (paleae): all entire, linear, 5-7 mm, equalling flowers.

Sepals: lanceolate, c.3 mm, longer than corolla, with thickened midvein produced in spinose tip; margins narrow, hyaline.

Corolla: 1.5-2 mm, bluish.

Style: exserted.

Fruits: shortly oblong, with scale-like outgrowths;

seeds: on upper half of fruit more numerous, longer, acute; those on lower half shorter, obtuse.

Fl.: late August to September.

Geo: Type. Turkey C4 Konya: south of Karanje dere, between Geyik Dağı and Bozkır, 1830m.

(with FOT11:) S. Anatolia. C4 Konya: Ermenek, Göktepe, Dumlugöze koyu, 950-1300m; Bozkır, Geyik Dağı, Korualan-Akdam Y., 2000-2100 m; Antalya: Gündoğmuş, Geyik Dağı, Söbüçimen Y., 1950-2050 m, 36° 57.5' N; 32° 15.8' E. Endemic. East Mediterranean element.

Note: This species was first collected in 1947 by Peter H. Davis who noted the obvious differentiating character of the spiny petioles of the cauline leaves but treated it (reluctantly, in sched.) as an undescribed form of *E. bourgatii* Gouan subsp. *heldreichii* (Boiss.) Davis as he only had a single, though ample, gathering. It was not till nearly 40 years later that a second collection of the same taxon was made by Huseyin Sümbül c. 100km further east. The same distinct and constant characters - spiny petioles, broader primary leaf segments divided only to middle, spiny margined involucral bracts and shortly oblong fruits - clearly confirmed that the taxon is not merely a form of *E. bourgatii* but it justifies recognition at species level.

Note: (FOT11:) Close to the S. Anatolian *E. bourgatii* Gouan subsp. *heldreichii* (Boiss.) P.H.Davis [4: 300], and originally determined as that taxon by Davis, but differing in its spiny winged petioles; broader primary leaf segments divided only to middle; spiny-margined involucral bracts and shortly oblong fruits.

erzincanicum

[PoWo](#) - Turkey only

Local endemic - description not publicly available - [PDF Search](#)

falcatum

[PoWo](#) - East Aegean Is., Lebanon-Syria, Palestine, Turkey

Flora of Turkey 1972

6. *E. falcatum* Delar., Eryng. Hist. 40, t. 13 (1808). Ic: Boul., Fl. Lib. Syr. t. 151 (1930).

Plant: Slender perennial. Stems 20-70 cm, usually branched above the middle.

Basal leaves: withering at flowering time, narrowly triangular with cordate base, 2.5-6 x 1.5-4.5 cm, subcoriaceous, crenate-muticous.

Cauline leaves: subsessile, 3-5-sect into oblong-linear, spiny-margined segments.

Inflorescence: glaucous, racemose to narrowly paniculate;

capitula: (1)4-28, hemispherical, 8-15 mm diam.

Bracts: 5, linear, pungent, 2-4 x capitulum, bearing 2 slender deflexed spines at base.

Outer bracteoles: tricuspidate; inner entire or tricuspidate.

Fl.: 7-9. Rocky slopes, open woodland, macchie, s.l.-900 m.

Geo: S. Anatolia. C2 C3 C5 C6 - W. Syria. E. Medit. element.

Syria-Palestine Post 1932

7. *E. falcatum* Laroche. (1808) 24 Falcate E. (ii. 827).

Plant: (24 Perennial), 50 to 80 cm, green, dichotomous-corymbose, few-headed.

Root-leaves and lower stem-leaves: membranous, long-petioled, cordate-ovate, crenate, often 15 cm long, undivided or palmately 3-parted, with lanceolate, doubly serrate segments;

upper stem-leaves: sessile, coriaceous, 3-6-palmatisect into lanceolate and linear, serrate-prickly, deflexed, falcate segments.

Involucre-leaves: 5-6, linear-lanceolate, with prickly point and margins, thrice as long as 10 to 14 mm long heads.

Fl.: July, Aug.

Hab: Dry fields and hillsides, end.

Flora of Greece 2025

Plant: Perennials, green to glaucous, 20-70 cm tall.

Basal leaves: undivided, oblong, base always deeply cordate, margins crenate, not decurrent on petiole, with palmate to reticulate veins, spineless, 1-4.5 x 2-6 cm, mostly withered during flowering time.

Stem: erect, slender, green to yellowish with purple stripes, branched only in synflorescence.

Cauline leaves: palmate, sessile or with very short, sheathed petiole, with palmate veins and 3-5 unequal, sickle-shaped, reflexed segments, margins dentate, segments with parallel to reticulate veins.

Capitula: 1-7, umbels orbicular, 1 enlarged terminal and several lateral.

Involucral leaves: 5, linear-lanceolate, dentate, with parallel to reticulate veins, 25-50 x 3-5 mm, 2-4 x as long as inflorescence.

Bracts: tricuspidate, green, slightly longer than flowers including fruit.

Sepals: ovate, acuminate, mucronate.

Petals: linear, shortly hairy, white or tinged blue, wings $\frac{1}{3}$ - $\frac{1}{2}$ as long as petals, inflexed lobe $\frac{4}{5}$ to as long as petal, fused for nearly its whole length, apex free.

Fruits: conic with 4 ribs and long acuminate, white scales on ribs and margins, smaller ones elsewhere, yellowish brown.

Karyology: $2n = 14$ (Perdigo I Ariso 1981: 7), $n = 6$ (Constance & al. 1971: 613).

Distribution: S Turkey, Syria, Lebanon, Israel and Palestine, Jordan. Only one record from Greece: the island of Megisti (Kastellorizo) off the S coast of Turkey (Greuter 1979: 572).

Ecology: Open pine forests and degraded forest sites, on dry, calcareous soil in shady, grazed habitats.

Wolff 1913

16. *E. falcatum* Delar. Eryng. Hist. (1808) 40, t. 13; Poir. in Lam. Encycl. méth. Bot. Suppl. IV. (1816) 290; DC. Prodr. IV. (1830) 90; Boiss. Fl. orient. II. (1872) 827; Post, Fl. Syria etc. (1896) 330. - *E. dichotomum* B. *E. falcatum* Spreng. in Röm. et Schult. Syst. veg. VI. (1820) 321.

Stem: erect up to one meter tall, often shorter, slender, hard, simple below and remotely leaved, shortly branched above or in more robust specimens furnished with elongate, suberect branches, apex rarely monocephalous, more often (2-)3-furcate, branches once to three times trifurcately branched.

Leaves: all thinly coriaceous,

lower ones: supported by a slender, semi-terete petiole up to 10 cm long,

outer basal ones: cordate-triangular, acuminate, with \pm acute apex, coarsely crenate-serrate, teeth broad with apex produced into a spinule or muticous, palmately 7-11-nerved, nerves remotely and prominently veined, 2-7 cm long, 1-4 cm wide;

inner and lower cauline ones: more rarely trilobed, middle lobe obovate-lanceolate, undivided, lateral lobes obliquely ovate, subtrilobulate, all sharply serrate;

remaining cauline leaves: shortly petiolate or subsessile, deflexed, palmately 3-5-partite, segments sharply spinulose-serrate.

Heads: \pm semiglobose, up to 12 mm long;

involucral bracts: 5-6 very rigid, spreading, subequal, with callous-thickened margin entire or remotely spinulose, base augmented with single simple or paired reflexed spines;

floral bracts: slender, exceeding flowers, outer ones or rarely all tricuspidate, inner ones entire, falcate, very long-acute, 6-8 mm long.

Sepals: ± ovate-lanceolate, acuminate, produced into a short spinule, up to 3½ mm long;

petals: ovate-oblong, excised to the middle, with inflexed lobule sublinear or linguiform of equal length, 2-3 times narrower, apex obtuse, furnished with papillose dorsal surface, ca. 2 mm long, ¾ mm wide.

Fruit: not fully mature ca. 7 mm long, furnished with lateral and few (or almost none) calycine scales, dorsal ones none or minute serially arranged and ridges slightly cristate-serrate.

Geo: Zone of Asia Minor and Syria of the middle Mediterranean province, on dry hills, in open woods locally very widespread, ascending in the Lebanon to the alpine region. - Syria (Gaillardot, Herb. Syr. n. 66; Blanche, Syrien n. 618; Aucher-Eloy, Herb. d'Or. n. 3571; Peyron, Fl. syr. n. 4; Sintenis, It. or. n. 1440; Bornmüller, It. syr. n. 620 b, c, 621; Post, Syrien n. 237, Amanus; Labillardière; Boissier; Dingler). - Palestine. - Lycia: Temenor near Trysa (Luschan - Herb. Univ. Wien), in Anatolia probably more widely distributed. - Flowers in the plain in May and June, in the mountains in July and August.

Note: Note. The plant varies greatly with stem low and simple (f. *aprica* Bornm. msc.) or tall and branched, with leaves small or large, with involucre bracts narrow, almost subulate and unarmed or rather broad and somewhat foliaceous with margin remotely spinulose-serrate to such a degree that distinct forms or varieties can scarcely be distinguished.

Caulis erectus usque metralis, saepe humilior, tenuis, durus, inferne simplex et remote foliatus, superne breviter ramosus vel in specim. robustioribus ramis elongatis, suberectis instructus, apice raro monocephalus, saepius (2-)3-furcatus, ramis semel usque ter trifurcato-ramulosis. Folia omnia tenuiter coriacea, inferiora petiolo tenui semitereti, usque 10 cm longo fulta, basalia exteriora cordato-triangularia, acuminata, apice ± acuto, grosse crenato-serrata, dentibus latis apice in spinulam productis vel muticis, palmatis 7-11-nerviis, n. remote et prominenter venosis, 2-7 cm longa, 1-4 cm lata; interiora et caulina inferiora rarius triloba, lobo medio obovato-lanceolato, indiviso, l. lateralibus oblique ovatis, subtrilobulatis, omnibus argute serratis; caulina cetera breviter petiolata vel subsessilia, deflexa, palmato-3-5-partita, segmentis argute spinuloso-serratis. Capitula ± semiglobosa, usque 12 mm longa; bractee involucrales 5-6 rigidissimae, patulae, subaequales, margine callosa-incrassata integrae vel remote spinulosae, basi spinis singulis simplicibus vel geminatis reflexis auctae; florales graciles, flores superantes, exteriores vel raro omnes tricuspidatae, interiores integrae, falcatae, longe acutissimae, 6-8 mm longae. Sepala ± ovato-lanceolata, acuminata, in spinulam brevem producta, ad 3½ mm longa; petala ovato-oblonga, usque ad medium excisa, lobulo inflexo sublineari vel linguiformi aequilongo, 2-3-plo angustiore, apice obtuso, dorso papilluloso instructa, ca. 2 mm longa, ¾ mm lata. Fructus haud plane maturus ca. 7 mm longus, squamis lateralibus calycinisque paucis (vel subnullis), dorsalibus nullis vel minutis seriatim dispositis et jugis leviter cristato-serratis instructus.

Kleinasatische und syrische Zone der mittleren Mediterranprovinz, auf trockenen Hügeln, in lichten Wäldern stellenweis sehr verbreitet, steigt im Libanon bis in die alpine Region auf. - Syrien (Gaillardot, Herb. Syr. n. 66; Blanche, Syrien n. 618; Aucher-Eloy, Herb. d'Or. n. 3571; Peyron, Fl. syr. n. 4; Sintenis, It. or. n. 1440; Bornmüller, It. syr. n. 620 b, c, 621; Post, Syrien n. 237, Amanus; Labillardière; Boissier; Dingler). - Palästina. - Lycien: Temenor bei Trysa (Luschan - Herb. Univ. Wien), in Anatolien wahrscheinlich weiter verbreitet. - Blüht in der Ebene im Mai und Juni, im Gebirge im Juli und August.

Nota. Stirps valde variat caule humili et simplici (f. *aprica* Bornm. msc.) vel elato et ramoso, foliis parvis vel magnis, bracteis involucrentibus angustis, subsubulatis inermibusque vel latiusculis subfoliaceisque margine remote spinuloso-serratis tantopere, ut formae vel varietates distinctae vix discerni possint.

Transcription: Al then checked against image then winmerge-checked against OCR

giganteum

PoWo - **Native:** North Caucasus, Transcaucasus, Turkey; **introduced:** Czechia-Slovakia, Denmark, Germany, Great Britain, Newfoundland, Norway, Sweden, Switzerland

Flora of Turkey 1972

4. *E. giganteum* Bieb., Fl. Taur.-Cauc. 1:201 (1808). Syn: *E. haussknechtii* Bornm. in sched. ad pl. Anatol. or., et in Mitt. Thier. Bot. Ver. n. f. 20:12 (1905)! Ic: Wolff, op. cit. f. 23 (1913). Figure 4, p. 269. Map 48, p. 305.

Plant: Stout biennial (?), root fusiform.

Stem: 30-130 cm.

Basal leaves: subcoriaceous, withered at flowering time, cordate-triangular, 7-16 x 12-18 cm, crenate-muticous.

Median cauline leaves: ovate, subsessile, amplexicaul, incised-spinose, the uppermost deeply trifid

into 3 incised-spinose lobes.

Inflorescence: glaucous to bluish, ascending-paniculate.

Capitula: 3-9, ovate to oblong, 10-25 mm diam. and up to 40 mm long.

Bracts: (5)6-9, foliose, ovate-oblong, incised-spinose, 1-2 x capitulum, overlapping.

Bracteoles: all tricuspidate.

Fl.: 7-8. Open forest, scrub, rocky or bare slopes, 800-2300 m.

Geo: Mainly N. & N.E. Anatolia. A3 A4 A5 A6 A7 A8 A9 B10 - Caucasus. Euxine element; often growing in mountain valleys in rain shadow.

Note: The nearest ally is the C. European *E. alpinum* L. Turkish records for *E. spina-alba* Vill. should be referred to *E. giganteum*.

USSR 1950

1, *E. giganteum* M.B: Fl. taur.-cauc. I (1808) 201; Ldb. Fl. Ross. II, 238; Boiss. Fl. or. II, 829; Schmal'g., Fl. 1, 383; Voronov in Vestn. Tifl. Bot. Sada, X, 5; Wolff in Pflzr. Heft 61, 124; Grossg., Fl. Kavk. III, 121. - *E. glaucum* Adams. ex Hoffm. Hort. Mosq. (1808) 15 No. 1309, nom. - Ic. Wolff, l.c. 125.

Plant: Perennial, 0.5-1.5 m high, pale green, juvenile often bluish; main root thick;

stems: 0.7-1.5 m high, 1-1.5 cm thick at base, furcate above, to 3 branches, these often furcate in turn;

leaves: coriaceous, with netted venation,

radical leaves: broadly cordate or cordate-triangular, 10-15 cm long and as wide, entire, irregularly crenate-dentate, petioles 20 cm,

lower cauline leaves: ovate, sessile, broadly amplexicaul, entire, acutely spinose-dentate, the lower sometimes larger than the radical, decreasing in size upward, the terminal deeply cleft.

Inflorescence: loose, heads on thick stipes, oblong-ovoid, 3-5(6) cm long, 3-4 cm across;

leaflets of involucre: 6-10, large, exceeding heads scarcely smaller than terminal leaves, oblong-ovate, 4-6 cm long, spinose, cleft-serrate;

bracts: to 10mm long, 3-cuspidate above;

flowers: numerous, calyx-teeth lanceolate, elongating into spinose cusp;

fruit: to 10 mm long, broad, subrectangular laterally, dorsally covered with numerous scales.

Fl.: July, Fr. August.

Hab/Geo: Meadows of upper mountain belt. - Caucasus: Cisc. (central and western parts of the Main Range), W. Transc., E. Transc. (central part of Main Range), S. Transc. Gen. distr.: As. Min. (Pontus Range), Arm.-Kurd. (Ararat). Described from mountainous Armenia. Type in Leningrad.

Sell3 2009

1. *E. giganteum* M. Bieb. Tall *Eryngo E. asperifolium* Delarbre; *E. haussknechtii* Bornm.

Plant: Perennial monoecious herb with a thick, napiform root.

Stem: up to 2 m and 2 cm thick, pale green, glabrous, branched, leafy.

Leaves: alternate, coriaceous, glaucous;

basal: with the lamina up to 15 × 10 cm, ovate, acute at apex, crenate-serrate or crenate-dentate, cordate at base, glabrous;

cauline: variable, the lower more or less subrotund, spinulose-serrate, palmately 7-9(-13) veined and long-petiolate,

the upper: more or less deeply lobed, with long, rigid, spinose teeth and sessile, or with a short, sheathing petiole.

Inflorescence: of pedunculate, cylindrical or ovoid-cylindrical heads up to 10 × 4 cm, arranged in a broad open panicle;

bracts: up to 5 × 5 cm, inciselobate with long spines;

bracteoles: up to 10 × 4(8) cm, lanceolate or obovate.

Sepals: 5, 3-4 mm, ovate or ovate-lanceolate, with long spines.

Petals: 5, about 3 × 1 mm, obovate-lanceolate, slightly emarginate.

Stamens: 5; filaments pale; anthers yellow.

Styles: 2, pale blue; stigma cream.

Ovary: with a more or less fl at disc at apex.

Schizocarp: up to 10 × 4 mm, ellipsoid, densely scaly; mericarps slightly ridged; carpophore absent; vittae absent.

Flowers: 8-9. 2n = 16.

Geo/Hab: Introduced. Grown in gardens for ornament and well naturalised on waste ground near Otley in Yorkshire since 1986 and recorded from a number of other scattered localities in Great Britain. Native of the Caucasus.

glomeratum

PoWo - Cyprus, East Aegean Is., Greece, Iraq, Kriti, Lebanon-Syria, Palestine, Saudi Arabia, Sinai, Tunisia, Turkey

Flora of Turkey 1972

16. *E. glomeratum* Lam., Encycl. 4:755 (1798). Syn: *E. scariosum* Delar., Eryng. Hist. 29, t. 6 (1808).

Plant: Glaucous, many-stemmed perennial. Stems 30-60 cm, densely leaved.

Basal leaves: withered at flowering time, 6-10 cm, bipinnatisect below and bipinnatifid above, segments dentate-spinulose.

Cauline leaves: with a broad, entire, parallel-veined, vaginate petiole, lamina very deeply pinnatifid with a spinulose rachis and rigid, linear-lanceolate, entire or spinulose lobes.

Inflorescence: an oblong, thyrsoid panicle; capitula many, small, ovoid-globose, 6-10 mm diam.

Bracts: 5-6, linear-subulate, triquetrous, pungent, entire or remotely spinulose, 1.5-6 x capitulum.

Bracteoles: all entire, shorter or longer than sepals.

Fl.: 7-9. Rocky places, phrygana, tufa cliffs, disturbed steppe, s.l.-1600 m.

Geo: S.W., S. & E. (southern) Anatolia, Islands. C1 C2 C3 C4 C5 C6 C8 Aegean, W. Syria, Cyprus, N.

Iraq.

Note: Allied to *E. amethystinum* L. from C. & S. Europe and to *E. desertorum* Zohary from the Syrian Desert.

Syria-Palestine Post 1932

2. *E. glomeratum* Lam. (1797) 'ud-ul-kusm (Bo) Perennial (ii. 823; H. i. 614).

Key section: **Perennials**, with peduncled heads, growing in dry places. **Paleae** all entire.

Plant: 40-100 cm, rigid, erect, thyrsoïd or corymbose, glaucous-green.

Leaves: with short, sheathing petiole, bipinnatisect into linear-lanceolate, prickly-toothed lobes, the upper recurved.

Involucre-leaves: 5 or less, keeled, nearly entire, 3-5 times as long as 1 cm long head.

Fl.: July, Aug. Rocky places in mountains.

Wolff 1913

36. *E. glomeratum* Lam. Encycl. méth. Bot. IV. (1796) 755; Delar. Eryng. Hist. (1808) 29, t. 6; Spreng. in Röm. et Schult. Syst. veg. VI. (1820) 335; DC. Prodr. IV. (1830) 89; Boiss. Fl. orient. II. (1872) 823; Post, Fl. Syria etc. (1896) 330; Halácsy, Consp. fl. graec. I. (1901) 614. - *E. parviflorum* Smith in Sibth. et Smith, Prodr. fl. graec. (1806) 175. - *E. scariosum* Delar. l. c. 28, t. 5; Poir. in Lam. l. c. Suppl. IV. (1816) 288; DC. l. c. - *E. pentechinum* Sieb. msc. ex DC. l. c. - *E. foliis laciniatis*, capitulis florum exiguis et dense congestis Tourn. Corr. (1703) 23.

Plant: Glaucous-green, rigid, up to 75 cm tall.

Stems: 1 or more stout, ± densely leafy, remarkably abbreviated-racemosely branched, at apex 3-4-furcate, with short branches once or twice 3-furcately branched.

Basal leaves: small, with petioles 7-10 cm long, simply to bipinnately divided or anteriorly bipinnatifid, with linear segments, divaricate, with pungent-spinose apex, margin sparsely spinulose, becoming smaller toward the petiole;

cauline leaves: larger supported by a short petiole, vaginately-amplexicaul, multi-nerved, rather broadly scarious and unarmed, divided as the basal, with very rigid pinnae, up to 7 cm long, rather broad, recurvately and long spinose-dentate;

upper leaves: subsessile, tripartite with very rigid supporting bracts.

Inflorescence: thyrsoïd; capitula subglobose or ovoid-globose, 6-8 mm long;

involucral bracts: 5-6, spreading, rigid, linear or subulate, triquetrous, with pungent-spinose apex, margin unarmed or very remotely spinulose, at base furnished with single not-reflexed spinules, 1-5 cm long, 2-5 mm wide;

floral bracts: falcate-subulate, acute, exceeding or shorter than the flowers, 6-8 mm long.

Sepals: broadly ovate, 1-1½ mm long; petals papillose, rather broadly (oblong-)ovate, furnished with an inflexed lobe of nearly equal length, 2-3 times narrower, with obsoletely denticulate apex, 1½ mm long.

Fruit: 4-5 mm long, everywhere covered with narrow, very acute, appressed or spreading scales, nearly equal among themselves.

Geo: Central Mediterranean province, in fields, pastures, steppes and in mountains preferring stony dry slopes, ascending into the subalpine region. - Crete (Sieber - Herb. Berlin); Island of Cos (Aucher-Eloy, Herb. d'Or. n. 3569); Samos (Sibthorp); very widespread in Syria (Gaillardot, Herb.

Syr. n. 65, 370, 620 ter; Blanche, Lebanon n. 690; Bornmüller, It. syr. n. 647; Haussknecht); Palestine (Sieber). - Lycia: Akdagh (Luschan); Cilicia (Balansa, Pl. d'Or. n. 580); Cappadocia, in the Cataonian Taurus (Haussknecht); Kurdistan, Mardin (Sintenis, It. orient. n. 1247). The statement by Bonnet that the plant occurs in Tunisia appears very doubtful.

Flowers: from June to August, in higher elevations until autumn.

Note 1: The plant varies greatly in the segments especially of the upper leaves being narrow or dilated, in the involucral bracts being narrow or rather broad, in the capitula being larger or smaller to such a degree that distinct forms or varieties cannot be described.

Note 2: *E. scariosum* Delar. l. c. represents a plant with upper leaves divided into narrow and elongated segments.

Glauco-virens, rigidum, usque 75 cm altum. Caules 1 vel plures validi, ± dense foliosi, eximie abbreviatim racemoso-ramosi, apice 3-4-furcati, ramis brevibus semel vel bis 3-furcato-ramulosi. Folia basalia parva, 7-10 cm longe petiolata, simpliciter usque bipinnatisecta vel antice bipinnatifida, segmentis linearibus, divaricatis, apice pungenti-spinosis, margine parce spinulosis, ad petiolum versus minoribus; caulina majora petiolo brevi, vaginanti-amplexicauli, multinervio, latiuscule scarioso et inermi fulta, ut bas. partita, pinnis rigidissimis, usque 7 cm longis, latiusculis, recurvatim et longe spinoso-dentatis; superiora subsessilia cum fulcrantibus rigidissimis tripartita. Inflorescentia »thyrsioidea«; capitula subglobosa vel ovoideo-globosa, 6-8 mm longa; bracteae involucrales 5-6 patulae, rigidae, lineares vel subulatae, triquetrae, apice pungenti-spinosae, margine inermes vel remotissime spinulosae, basi spinulis singulis haud reflexis auctae, 1-5 cm longae, 2-5 mm latae; florales falcato-subulatae, acutae, flores superantes vel breviores, 6-8 mm longae. Sepala late ovata, 1-1½ mm longa; petala papillulosa, latiuscule (oblongo-)ovata, lobulo inflexo subaequilongo, 2-3-plo angustiore, apice obsolete denticulato instructa, 1½ mm longa. Fructus 4-5 mm longus, ubique squamis angustis, acutissimis, adpressis vel patulis, inter sese subaequimagnis obtectus.

Mittlere Mediterranprovinz, auf Äckern, Triften, Steppen und im Gebirge gern an steinigen trocknen Abhängen, bis in die subalpine Region aufsteigend. - Creta (Sieber - Herb. Berlin); Insel Cos (Aucher-Eloy, Herb. d'Or. n. 3569); Samos (Sibthorp); sehr verbreitet in Syrien (Gaillardot, Herb. Syr. n. 65, 370, 620 ter; Blanche, Libanon n. 690; Bornmüller, It. syr. n. 647; Haussknecht); Palästina (Sieber). - Lycien: Akdagh (Luschan); Cilicien (Balansa, Pl. d'Or. n. 580); Cappadocien, im cataonischen Taurus (Haussknecht); Kurdistan, Mardin (Sintenis, It. orient. n. 1247). Die Angabe von Bonnet, dass die Pflanze in Tunis vorkomme, erscheint sehr zweifelhaft. - Blüht von Juni bis August, in höheren Lagen bis zum Herbst.

Nota 1. Stirps valde variat segmentis imprimis fol. super. angustis vel dilatatis, bracteis involucralibus angustis vel latiusculis, capitulis majoribus vel minoribus tantopere, ut formae vel varietates distinctae describi non possint.

Nota 2. *E. scariosum* Delar. l. c. plantam sistit foliis superioribus in segmenta angusta et elongata partitis.

Transcription: Al then checked against image then winmerge-checked against OCR

heldreichii (& bourgatii)

PoWo - Lebanon-Syria, Turkey

PoWo (*bourgatii* ssp *bourgatii*) - Not Turkey: **native**: France, Morocco, Spain; **introduced**: Germany, Great Britain

Flora of Turkey 1972

14. *E. bourgatii* Gouan, Ill. Obs. Bot. 7: t. 3 (1773). subsp. *heldreichii* (Boiss.) Davis, comb. et stat. nov. Syn: *E. heldreichii* Boiss., Diagn. ser. 1(10):20 (1849)! *E. spinosissimum* Stapf & Wettst. in Denkschr. Akad. Wiss. Wien, Math.-Nat. Kl. 51:25 (1886).

Plant: Glaucous, many-crowned perennial.

Stems: 15-45 cm, sparsely branched above.

Basal leaves: persistent, coriaceous, suborbicular in outline, 3-5 cm diam., palmately 3-5-partite or biternatisect, segments divided into numerous lanceolate-subulate spiny lobes.

Cauline leaves: similar but shorter petioled, the uppermost subsessile, trisect or lanceolate.

Inflorescence: a narrow glaucous panicle;

capitula: 3-13, depressed-globose, 1.2-1.5 cm diam.

Bracts: 7-12, unequal, linear-lanceolate, pungent, ± recurved, entire or sparsely spinulose, 2-4 x capitulum, at least the outer ones 7-veined.

Bracteoles: entire, as long as or longer than flowers.

Fl.: 7-8. Rocky limestone slopes, 1520-2400 m.

Geo: Syntypes: [Turkey C3 Isparta] in monte Boudroun Pisidiae, 1520 m; [Lebanon] monte Gebel Scheick Antilibani, 2130-2740 m.

S. Anatolia. C2 Muğla: Girdev Da., 2400 m; C3 Antalya: Bozburun Da., 2200-2300 m; Tahtali Da.; Isparta: Dedegöl Da., at Oruz Gaz Ya., 1700 m; C4 Konya: above Us Pinar (nr. Bozkir), 1520 m; İçel: d. Anamur, Çamurlu Ya. to Olucak (Ermenek to Anamur). Lebanon, Anti-Lebanon (Hermon). E. Medit. (mt.) element.

subsp. bourgatii: (Iberian peninsula & N.W. Africa) differs only in its usually shorter, 3-5-veined outer bracts, and globose-ovoid capitula with bracteoles always longer than flowers.

Syria-Palestine Post 1932

5. E. Heldreichii Boiss. (1849) karsah (P) [perennial] (ii. 826).

Keying section: **Perennials**, with peduncled heads, growing in dry places. **Paleae** all entire.

Plant: 40-50 cm, pale-green below and pale-blue above corymbose, with few heads.

Root-leaves: rounded in outline, 2 to 4 cm broad 2-ternatisect, with over-lapping, incised-prickly segments;

stem-leaves: rather larger and looser, 2-4-ternate, lobes linear-prickly.

Involucre-leaves: 7-8, linear-lanceolate subulate, keeled, 2-0-prickly, twice to four times as long as 1 to 1.4 cm long head. July-Oct. Alpine and subalpine. Leb...

b. fallax: Involucre-leaves 2-3-prickly on each side at the base.

Wolff 1913

34. E. Heldreichii Boiss. Diagn. ser. I. 10. (1849) 20 et Fl. orient. II. (1872) 826; Post, Fl. Syria etc. (1896) 330. - E. Billardieri Heldr. msc. ex Boiss. Diagn. ser. I. 10. (1849) 20. - E. spinosissimum Stapf et Wettst. in Stapf, Beitr. Fl. Lyc. etc. II. (1886) 25 (Denkschr. Acad. Wien LI. pg. 369), ex specim. origin.

Plant: amethyst above, up to about 40 cm tall.

Stems: single or several, robust, very remotely leafy below, sparingly branched above, 3-4-forked at apex, branches once (or twice) 2-3-forked into branchlets.

Leaves: rigidly coriaceous when dry, basal ones numerous, supported by a petiole up to 20 cm long, semi-terete, suborbicular in outline, 2-5 cm long and wide, palmately 3-5-parted or biternately dissected, with segments often overlapping at the margins, somewhat intricate, divided into narrow or very narrow, long pungent-spinose lobes; cauline ones more briefly and broadly petiolate, smaller.

Primary prophylls: ovate, running out at front into 3-5 very rigid, very long, very acute spines.

Heads: semi-globose or more rarely ± flattened, about 20-flowered, 10-12 mm long;

involucral bracts: very rigid, linear-subulate, very acute, often reflexed at apex, prominently keeled beneath and thus triquetrous, entire or more rarely sparingly spinulose, at base often furnished with single or paired erect spines up to 10 mm long;

floral bracts: subulate, lowermost ones 1-2 cm long, remaining ones gradually smaller.

Sepals: ovate-lanceolate, suddenly produced into a small spine or gradually somewhat spinescent-acuminate;

petals: subrectangular, furnished with an inflexed lobe of nearly equal length, half as narrow, with obtuse apex, 2 mm long.

Mature fruit: not seen; dorsal scales very small, obtuse, lateral and calycine ones narrow, acute, uniseriate.

Geo/Hab: On the high mountains of the Syrian and Asia Minor zone of the middle Mediterranean province, ascending to about 2500 m.

Var: Occurs in two forms, between which intermediates have not yet been observed; flowers in July and August.

f. 1. verum Wolff.

Involucral bracts entire.

Syrien: Libanon (Blanche n. 3208 et bis, ex pte.; Bornmüller, lt. syr. n. 618; Dingler) und Antilibanon (Gaillardot, Antilib. n. 1828). - Pisidien, auf dem Bundrum, 5000' ü. M. (Heldreich n. 1194); Lycien: Akdagh (Luschan, sub *E. spinosissimum*).

f. 2. fallax Bornm. in Verh. zool.-bot. Gesellschaft. Wien XLVIII. (1898) 590

Involucral bracts sparingly and shortly spinulose-serrate; otherwise not different.

Syrien (Kotschy, lt. syr. n. 197, sub *E. Billardieri*; Blanche n. 3208 et bis, ex pte.; Bornmüller, lt. syr. n. 619, typus!).

Planta superne amethystina ca. usque 40 cm alta. Caules singuli vel plures validi, inferne remotissime foliosi, superne parce ramosi, apice 3-4-furcati, ramis semel (vel bis) 2-3-furcato-ramulosis. Folia in sicco rigide coriacea, basalia numerosa, petiolo usque 20 cm longo semitereti fulta, ambitu suborbicularia, 2-5 cm longa et lata, palmato-3-5-partita vel biternatisecta, segmentis saepe marginibus sese obtegentibus, subintricatis, in lacinias angustas vel angustissimas, longe pungenti-spinosas fissis; caulina brevius latisque petiolata, minora. Prophylla primaria ovata, antice in spinas 3-5 rigidissimas, longissimas, acutissimas excurrentia. Capitula semiglobosa vel rarius ± applanata, ca. 20-flora, 10-12 mm longa; bracteae involucrales rigidissimae, lineari-subulatae, acutissimae, apice saepe reflexae, subtus prominenter carinatae itaque triquetrae, integerrimae vel rarius parce spinulosae, basi saepe spinis singulis vel binis arrectis, usque 10 mm longis auctae; florales subulatae, imae 1-2 cm longae, ceterae sensim minores. Sepala ovato-lanceolata, subito in spinulam producta vel sensim subspinescenti-acuminata; petala subrectangularia lobulo inflexo subaequilongo, dimidio angustiore, apice obtuso instructa, 2 mm longa. Fructus maturus non visus; squamae dorsales perparvae, obtusae, laterales et calycinae angustae, acutae, uniseriatae.

Auf den Hochgebirgen der syrischen und kleinasiatischen Zone der mittleren Mediterranprovinz, bis etwa zu 2500 m aufsteigend. Tritt in zwei Formen auf, zwischen denen Übergänge bisher nicht beobachtet worden sind; blüht im Juli und August.

f. 1. verum Wolff. - Bracteae involucrales integerrimae.

Syrien: Libanon (Blanche n. 3208 et bis, ex pte.; Bornmüller, lt. syr. n. 618; Dingler) und Antilibanon (Gaillardot, Antilib. n. 1828). - Pisidien, auf dem Bundrum, 5000' ü. M. (Heldreich n. 1194); Lycien: Akdagh (Luschan, sub *E. spinosissimum*).

f. 2. fallax Bornm. in Verh. zool. bot. Gesellschaft. Wien XLVIII. (1898) 590. - Bracteae involucrales parce breviterque spinuloso-serratae; ceterum haud diversum.

Syrien (Kotschy, lt. syr. n. 197, sub *E. Billardieri*; Blanche n. 3208 et bis, ex pte.; Bornmüller, lt. syr. n. 619, typus!).

Transcription: AI then checked against image then winmerge-checked against OCR

Eryngium bourgatii subsp. bourgatii

Flora Europaea 1968

NB: *E. bourgatii* subsp. *bourgatii*

21. *E. bourgatii* Gouan, Obs. Bot. 7 (1773).

Plant: Perennial; stems 15-45 cm, erect.

Basal leaves: slightly coriaceous, persistent; lamina 3-7 cm, suborbicular, 3-sect with pinnatifid or 2-pinnatifid, spinescent-dentate segments; petiole 2-4 times as long as lamina, unwinged.

Inflorescence: usually bluish, with up to 7 pedunculate, ovoid-globose capitula 1.5-2.5 cm.

Bracts: 2-5 cm, 10-15, linear-lanceolate, entire or with 1-2(3) pairs of spinescent teeth;

bracteoles: entire or 3-cuspidate.

Sepals: c. 3 mm, lanceolate to ovate, aristate.

Fruit: sparsely scaly.

2n = 16.

Hab: Dry, stony places on mountains.

Geo: Spain, Pyrenees. Ga Hs.

Flora Iberica 2003

NB: *E. bourgatii* subsp. *bourgatii*

11. *E. bourgatii* Gouan, Ill. Observ. Bot.: 7, tab. 3 (1773) [*Bourgátii*] [*"Bourgati"*], nom. cons. prop.

Plant: Perennial plant, 6-50 cm, spiny. Woody, upright, ± branched rootstock with fibrous remnants.

Stems: 0.15-0.7 cm in diameter at the base, simple in the lower part, sparsely branched in the inflorescence, generally bluish in the upper part.

Leaves: all subcoriaceous, green with a whitish band around the main veins; the basal ones 4-25 × 3.5-8 cm, with a petiole of c. 1/2-3/4 of the total length of the leaf and unarmed, with a blade broadly ovate or suborbicular in outline, much divided, trisect (or almost palmatisect with 5 segments), with the segments pinnatifid (3-5 divisions), the central one petiolulate, the lateral ones asymmetrical -almost splitting into 2 segments-, all with sublinear, spinulose or clearly divaricate-spinose lobes, persistent at anthesis and in a rosette; cauline leaves 3-9 -1-5 sterile scattered, 0-2 scattered fertile and 1-2 pairs of opposite fertile-, similar to the basal ones but with the blade less divided -up to trisect-, sessile, subamplexicaul.

Capitula: 1-7(9), 10-25(30) × 10-20 mm, subglobose or globose, ± prominent from the involucre, the central one with a peduncle -thickened superiorly- of 15-85 mm, multiflorous, arranged in monochasias or dichasial clusters -additionally on flowering axes in the lower axils-, bluish.

Bracts: 8-13, 20-50(60) mm (2-4 mm wide at the base), 1.5-2.5 times the length of the capitulum, subulate (wider towards the base), rigid, with a very prominent midrib, with 0-4(6) spinules on each side -2-6 mm-, usually bluish, ± erect so that the base of the capitulum is ± obconical, with or without spines alternating with them at the base of the capitulum.

Bracteoles: 8-12 mm, as many as flowers, subulate - sometimes the outer ones tricuspidate - , glabrous.

Sepals: 3-4 mm, elliptic, apiculate, with a membranous margin, green, glabrous.

Mericarps: 4-6 × 2-3.5 mm, with scattered scales-up to 1 mm-often brown. 2n = 16; n = 8*.

Hab: ± nitrified pastures, scree slopes, stony ground, on acidic or basic substrate; (25)700-2300 m. (VI)VII-IX.

Geo: ...

Observations: In the Peninsula, two varieties have been recognized, northern and southern, within this species. The northern one -*E. bourgatii* var. *pyrenaicum* Lange in Willk. & Lange, Prodr. Fl. Hispan. 3: 12 (1874)-would have wider, less spiny leaf divisions and fruits with very scattered or absent scales. The southern variety would be characterized by narrower, spinier last leaf divisions and fruits more densely covered with scales [*E. bourgatii* var. *hispanicum* Lange in Willk. & Lange,

Prodr. Fl. Hispan. 3: 12 (1874)]. There is undoubtedly a tendency for these two characteristics to follow this pattern. Furthermore, the characteristic intense blue color of the central and northern populations of the Iberian Peninsula is much less pronounced in the Andalusian populations [*E. bourgatii* **var. viridescens** É. Rev., Pl. Espagne: no. 1147 (1903), in sched., nom. nud.]. A more in-depth study, supplemented with molecular markers, is needed to clarify the problem, since if we only consider morphological characteristics, there are many exceptions and imprecise geographical boundaries. There is a synonym earlier than *E. bourgatii* - *E. pallescens* Mill., Gard. Dict. ed. 8, no. 5 (1768) ["palescent"] - which, however, has never been used, so we have proposed retaining Gouan's name instead [cf. Taxon 50: 585-586 (2001)].

(Google)

Perennial plant, 6-50 cm, spiny. Woody, vertical stock, ± branched, with fibrous remains. **Stems** 0.15-0.7 cm diameter at base, simple in lower part, sparingly branched in inflorescence, generally bluish in upper part. **Leaves** all subcoriaceous, green with whitish band around main veins; basal leaves 4-25 × 3.5-8 cm, with petiole c. 1/2-3/4 of total leaf length and unarmed, with blade broadly ovate or suborbicular in outline, deeply divided, trisect (or almost palmately divided with 5 segments), with pinnatipartite segments (3-5 divisions), the central petiolulate, the lateral asymmetric -almost splitting into 2 segments-, all with sublinear lobes, spinulose or clearly divaricate-spiny, persistent at anthesis and rosulate; cauline leaves 3-9 -1-5 sterile scattered, 0-2 scattered fertile and 1-2 pairs of opposite fertile-, similar to basal leaves but with blade less divided -up to trisect-, sessile, subamplexicaul. **Capitula** 1-7(9), 10-25(30) × 10-20 mm, subspherical or globose, ± prominent from involucre, the central one with peduncle -thickened above- 15-85 mm, multiflorous, arranged in monochasial or dichasial cymes -additionally on flowering axes in lower axils-, bluish. **Bracts** 8-13, 20-50(60) mm (2-4 mm wide at base), 1.5-2.5 times length of capitulum, subulate (broader toward base), rigid, with very marked midrib, with 0-4(6) spinules on each side -2-6 mm-, usually bluish, ± erect so that base of capitulum is ± obconical, with or without spines alternating with them at base of capitulum. **Bracteoles** 8-12 mm, as many as flowers, subulate -sometimes outer ones tricuspidate-, glabrous. **Sepals** 3-4 mm, elliptic, apiculate, with membranous margin, green, glabrous. **Mericarps** 4-6 × 2-3.5 mm, with scattered scales -up to 1 mm- often chestnut-colored. **2n** = 16; **n** = 8*.

Grasslands ± nitrified, screes, stony ground, on acid or basic substrate; (25)700-2300 m. (VI)VII-IX....

Observations: Two varieties, northern and southern, have been recognized within this species in the Peninsula. The northern variety -*E. bourgatii* **var. pyrenaicum** Lange in Willk. & Lange, Prodr. Fl. Hispan. 3: 12 (1874)- would have broader and less spiny leaf divisions and fruits with very scattered or absent scales. The southern variety would be characterized by narrower and spinier ultimate leaf divisions, and by fruits more densely covered with scales [*E. bourgatii* **var. hispanicum** Lange in Willk. & Lange, Prodr. Fl. Hispan. 3: 12 (1874)]. Undoubtedly there is a tendency for these two characters to follow this pattern. Furthermore, the characteristic intense blue color of populations from C and N Peninsula is much less pronounced in Andalusian populations [*E. bourgatii* **var. viridescens** É. Rev., Pl. Espagne: no. 1147 (1903), in sched., nom. nud.]. A more thorough study complemented with molecular markers is necessary to elucidate the problem, since if we consider only morphological characters the exceptions are numerous and geographical limits imprecise. There exists a synonym prior to *E. bourgatii* -*E. pallescens* Mill., Gard. Dict. ed. 8, no. 5 (1768) ["palescente"]- which, however, has never been used, for which reason we have proposed conservation of Gouan's name over it [cf. Taxon 50: 585-586 (2001)].

(Claude)

Planta perenne, 6-50 cm, espinosa. Cepa leñosa, vertical, \pm ramificada, con restos fibrosos. Tallos 0,15-0,7 cm de diámetro en la base, simples en la parte inferior, poco ramificados en la inflorescencia, generalmente azulados en la parte superior. Hojas todas subcoriáceas, verdes con banda blanquecina en torno a los nervios principales; las basales 4-25 \times 3,5-8 cm, con peciolo de c. 1/2-3/4 del total de la longitud de la hoja e inermes, con limbo de contorno anchamente ovado o suborbicular, muy dividido, trisecto (o casi palmatisecto con 5 segmentos), con los segmentos pinnatipartidos (3-5 divisiones), el central peciolulado, los laterales asimétricos -que casi se desgajan en 2 segmentos-, todos con lóbulos sublineares, espinulosos o claramente divaricado-espinosos, persistentes en la antesis y arrosetadas; hojas caulinares 3-9 -1-5 estériles esparcidas, 0-2 esparcidas fértiles y 1-2 pares de opuestas fértiles-, parecidas a las basales pero con el limbo menos dividido -hasta trisectas-, sésiles, subamplexicaules. Capítulos 1-7(9), de 10-25(30) \times 10-20 mm, subesféricos o globosos, \pm destacados del involucro, el central con pedúnculo -engrosado superiormente- de 15-85 mm, multifloros, dispuestos en monocasios o dicasios -adicionalmente sobre ejes floríferos en las axilas inferiores-, azulados. Brácteas 8-13, de 20-50(60) mm (2-4 mm de anchura en la base), de 1,5-2,5 veces la longitud del capítulo, subuladas (más anchas hacia la base), rígidas, con nervio medio muy marcado, con 0-4(6) espinulas a cada lado -de 2-6 mm-, de ordinario azuladas, \pm erectas de forma que la base del capítulo es \pm obcónica, con o sin espinas que alternan con ellas en la base del capítulo. Bractéolas 8-12 mm, tantas como flores, subuladas -a veces las externas tricuspidadas-, glabras. Sépalos 3-4 mm, elípticos, apiculados, con reborde membranáceo, verdes, glabros. Mericarpos 4-6 \times 2-3,5 mm, con escamas dispersas -hasta de 1 mm- a menudo de color castaño. $2n = 16$; $n = 8^*$.

Pastos \pm nitrificados, gleras, pedregales, en substrato ácido o básico; (25)700-2300 m. (VI)VII-IX. Península Ibérica -alcanzando la vertiente francesa del Pirineo- y NW de África (Marruecos). Sistema Pirenaico-cantábrico, Sistema Central (mucho más frecuente en Gredos que Guadarrama), Alto Sistema Ibérico, Serranía de Cuenca y sierras béticas orientales. And. Esp.: (Ab) Al Av B Bi Bu Cc Cu Ge Gr Hu J L Le Lo Lu (M) (Mu) Na O P S Sa Sg (So) SS Vi. N.v.: alguerrico, azulejos, cardo blanco, cardo cuco, cardo de la Magdalena, cardo de puerto, cardo santo; cat.: espinacal, panical blanc, panical blau, panical de muntanya.

Observaciones. -En la Península se han reconocido dos variedades, septentrional y meridional, dentro de esta especie. La septentrional -*E. bourgatii* var. *pyrenaicum* Lange in Willk. & Lange, Prodr. Fl. Hispan. 3: 12 (1874)- tendría las divisiones de las hojas más anchas y menos espinosas y los frutos con escamas muy dispersas o nulas. La variedad meridional se caracterizaría por las últimas divisiones de las hojas más estrechas y espinosas, y por los frutos más densamente cubiertos de escamas [*E. bourgatii* var. *hispanicum* Lange in Willk. & Lange, Prodr. Fl. Hispan. 3: 12 (1874)]. Es indudable que hay tendencia a que estos dos caracteres sigan dicha pauta. Además, el característico color azul intenso de las poblaciones del C y N de la Península es mucho menos acusado en las poblaciones andaluzas [*E. bourgatii* var. *viridescens* É. Rev., Pl. Espagne: n.º 1147 (1903), in sched., nom. nud.]. Es necesario un estudio más profundo complementado con marcadores moleculares para dilucidar el problema, ya que si atendemos únicamente a los caracteres morfológicos las excepciones son muchas y los límites geográficos imprecisos. Existe un sinónimo anterior a *E. bourgatii* -*E. pallescens* Mill., Gard. Dict. ed. 8, n.º 5 (1768) ["pallescente"]- que, sin embargo, nunca se ha usado, por lo que hemos propuesto la conservación del nombre de Gouan frente a él [cf. Taxon 50: 585-586 (2001)].

ilex

[PoWo](#) - Turkey only

PDF ilex 2020

Plant: Perennial herbaceous plants.

Root pile: at least 30 cm long, dark brown.

Stem: erect, 7-60 cm long, glabrous, green when young, pale blue, blue, and indigo later in life, often branched at the top; stem diameter 0.2-0.6 cm at base, 0.1-0.3 cm at apex.

Basal leaves: 2-7, glabrous; lamina oblong, lanceolate, slightly obverse-lanceolate, 1.6-10.5 \times 1-3.2 cm, spiny, toothed, and reticulate-veined on margins; petiole broadened at base, slightly sheathed, 2.4-8.7 cm long;

lower stem leaves: alternate, short-petiolate; petioles sheath-shaped at base, narrowly elliptical or lanceolate;

the central leaves: are sessile, elliptical to lanceolate, 1.4-7.8 \times 0.4-3.5 cm, sheathed at the base;

the upper leaves: are similar to the central leaves, smaller;

branching leaves: the stem is generally branched, with leaves in the branching zone arranged in a whorl, lanceolate, 2-4.8 \times 0.5-1 cm, sessile, some deeply tripartite, and pointed at the tip, resembling bracts.

Rays: 1-4, 2-14 cm long, rays sometimes having one secondary axis.

Inflorescence: 1-8, globose or hemispherical, without bracteoles, 10-35 mm in diameter.

Compound inflorescence: resembles a simple dichasium or a cycad pseudumbel.

Bracts: 8-10, 1.2-4.2 \times 0.1-0.4 cm, with a prominent midrib, lanceolate, ciliated; Spines opposite

near their bases, not opposite in the middle.

Bracteoles: 4-12 x 0.7-1 mm, midrib prominent, lanceolate, longer than calyx.

Sepals: 4.6-5.3 x 0.7-1.2 mm; teeth ovate, lanceolate, midrib prominent, sharp, stinging apex.

Petals: elliptical, involute, bifid at apex, 1.7-2.2 x 0.4-1 mm, violet.

Fruit: A split fruit formed by mericarps, 4-12 x 2-4 mm, elliptical, laterally compressed, with a surface covered with similar tubercles.

(Google)

Çok yıllık otsu bitkiler.

Kök kazık en az 30 cm uzunluğunda, koyu kahverenginde.

Gövde dik, 7-60 cm uzunluğunda, tüysüz, genç dönemde yeşil, ilerleyen dönemlerde açık mavi, mavi ve çivit rengine, üst kısımda genellikle dallanmış; gövde çapı tabanda 0,2-0,6 cm, uçta 0,1-0,3 cm.

Taban yaprakları 2-7, tüysüz; aya dikdörtgenimsi, mızraksı, hafifçe ters mızraksı, 1,6-10,5 x 1-3,2 cm, kenarlarda dikenli, dişli, ağsı damarlı; yaprak sapı tabanda genişlemiş, hafif kınlı, 2,4-8,7 cm uzunluğunda;

alt gövde yaprakları alması, kısa saplı; saplar tabanda kın şeklinde, dar eliptik veya mızraksı;

orta yapraklar sapsız, eliptikten mızraksıya kadar değişik şekilli, 1,4-7,8 x 0,4-3,5 cm, tabanda kınlı;

üst yapraklar orta yapraklara benzer, daha küçük;

gövde genelde dallanmış, dallanma bölgesinde yapraklar halkavari dizilişli, mızraksı, 2-4,8 x 0,5-1 cm, sapsız, bazıları derin üç parçalı, uçta braktelere benzer sivri.

İşinler 1-4 adet, 2-14 cm uzunluğunda, ışınlarda bazen 1 adet ikincil eksen bulunmakta.

Çiçek durumu kömeç, 1-8 adet, küremsi ya da yarı küremsi, brakteolsüz olarak 10-35 mm çapında.

Birleşik çiçek durumu basit dikazyum ya da talkımsı yalancı şemsiyeye benzer.

Brakteler 8-10 adet, 1,2-4,2 x 0,1-0,4 cm belirgin orta damarlı, mızrak şeklinde, kirpikli; dikenler tabanlarına yakın yerde karşılıklı, orta kısımlarında karşılıklı değil.

Brakteoller 4-12 x 0,7-1 mm, orta damar belirgin, mızrak şeklinde, çanaktan uzun.

Çanak yapraklar 4,6-5,3 x 0,7-1,2 mm; dişler yumurtamsı, mızraksı, orta damar belirgin, uç sivri batıcı.

Taç yapraklar eliptik, içe doğru kıvrık, uçta iki parçalı, 1,7-2,2 x 0,4-1 mm, menekşe rengine.

Meyve merikarplerin oluşturduğu yarılan meyve, 4-12 x 2-4 mm, eliptik, yanlardan basık, yüzeyi benzer kabarcıklarla kaplı.

Flora of Turkey 1972

1. E. ilex Davis in Notes R.B.G. Edinb. 24:23, t. 2 (1962).

Plant: Many-crowned perennial.

Stems: 15-30 cm, branched above.

Basal leaves: persistent, thickly coriaceous, oblong, 4-5 x 1.2-1.8 cm, coarsely spinose-dentate, rounded or truncate at base.

Median cauline leaves: sessile, oblong-lanceolate, incised-spinose;

upper ones: tripartite with incised-spinose lobes.

Inflorescence: glaucous or bluish, closely cymose-corymbose;

capitula: (2)3-4, subglobose, 10-15 mm diam.

Bracts: 7-9, linear, pungent, 2-3 x capitulum, sparsely spinulose.

Bracteoles: all entire.

Fl.: 7. Rocky limestone slopes, c. 2400 m.

Geo: Type: [Turkey B7) Tunceli: Munzur Da. above Ovacik, 2400 m, 18 vii 1957, Davis & Hedge, D. 31347 (holo. E!). Endemic, only known from the type Ir.-Tur. element.

Note: Allied to *E. bungei* Boiss. (Iran) and *E. carlinoides* Boiss. (Afghanistan, Baluchistan).

isauricum

PoWo - Turkey only

Flora of Turkey 1988

2b.: *E. isauricum* Contandr. & Quézel in Bull. Soc. Bot. Fr. 123:423 (1976).

Plant: Perennial, with thick, densely fibrous collar.

Stem: stout, 90-100 cm, floriferous in upper 2/3.

Basal leaves: coriaceous, persistent, 10-20 cm, with 5-7 cm petiole; lamina reticulately veined, digitate; lobes 3-5, entire, 4-6 x 1.5-3.5 cm, with spiny-denticulate margin.

Middle and upper cauline leaves: triangular-acute, amplexicaul, margin spiny-denticulate.

Inflorescence: spiciform, 50-70 x 5-6 cm, with 20-30 axillary branches each bearing 1(-2) capitula.

Capitula: 12-15 mm diam.;

bracts: 5-6, subulate-spinose, 1-3 cm, longest ones with 0-4 lateral spines at base;

bracteoles: ail tricuspidate.

Fl.: Calcareous rocks. c. 1300 m.

Geo: Type: [Turkey C4 İçel) rocaillies calcaires entre Anamur et Kazanci à une dizaine de kilomètres au sud de Kozagaç, 1300 m, P.Q.[uézel) & J.c.[ontandriopoulos) 70- 438 (holo. MARS). Endemic. E. Medit. element.

Note: Near to *E. thorifolium* Boiss. [4:294] but differing considerably in the form of the basal leaves and in the structure of the inflorescence.

kotschyi

PoWo - Turkey only

Flora of Turkey 1972

18. *E. kotschyi* Boiss., Diagn. ser. 2(5):97 (1856). Syn: *E. billardieri* Delar. subsp. *kotschyi* (Boiss.) Wolff in Engler, Pflanzenreich 61 (IV. 228): 142 (1913)! *E. digitifolium* Stapf & Wettst. in Denkschr. Akad. Wiss. Wien, Math.-Nat. Kl. 51:26 (1886)! Map 48, p. 305.

Plant: Rigid perennial with fibrous collars.

Stems: several, acutely branched above middle.

Basal leaves: persistent, coriaceous, glaucous, petiole often spiny near apex, lamina broadly cuneate-orbicular in outline, 6-13 cm long and broad, palmatisect into (3)5-7 elongate, remotely pinnatisect segments, all divisions being linear-lanceolate and almost parallel-veined, pungent, the terminal ones longer than the lateral ones (lobes).

Median cauline leaves: similar but with a short sheathing spiny margined petiole; those of the inflorescence mostly tripartite.

Inflorescence: amethyst, ± densely panicle, stout;

capitula: 8-20, depressed-globose, 10-23 mm diam.

Bracts: 6-15, unequal, ± recurved, broader and stouter than in *E. billardieri*, the outer ones 5-7-nerved and with 1-4 pairs of distant thicker teeth.

Bracteoles: entire, longer than sepals.

Mericarps: as in *E. billardieri*.

Fl.: 7-9. Stony slopes and limit of *Cedrus* forest, 1100-2250 m.

Geo: Type: [Turkey C5 Adana/Içel] in Tauro Cilicico ad terminos Cedreti versus plumbi fodinas, 1980 m.

S. Anatolia. C2 Burdur; Rahat Da.; Muğla: d. Fethiye, Baba Da., 1670-1830 m; Antalya: d. Elmalı, Yuva, 1100 m; C4 Konya: S.E. of Taşkent; C5 Niğde: Maden, N. side of Bokar Da.; Kayseri: Masmeneu Da., 145 km. S. of Caersarea (Kayseri). Endemic. E. Medit. (mt.) element?

Note: A gathering from B6 Maraş (d. Çardak, Kandil Da., 1400 m, D. 20235) has cauline leaves intermediate between those of typical *E. kotschy* and the closely allied *E. billardieri*, but in inflorescence and capitulum characters is typical of *E. kotschy*.

Wolff 1913 - *billardieri* ssp *kotschy*

Subspec. 1. *Kotschy* Boiss. - *E. Kotschy* Boiss. Diagn. ser. II. 5. (1856) 97. - *E. Billardieri* B. *Kotschy* Boiss. Fl. orient. I. c. - *E. digitifolium* Stapf et Wettst. in Stapf, Beitr. Fl. Lyc. etc. II. (1886) 26 (in Denkschr. Akad. Wien LI. pg. 370).

Basal leaves: supported by a petiole up to 15 cm long, broad, flat, naked below, spinulose- or spinose-laciniate above, duplicate-palmately 3-5-partite, primary segments very elongate, narrow, secondary segments abbreviated, often very narrow;

lower cauline leaves: similar to basal ones, segments not rarely longer and more rigid, upper leaves simply palmate.

Capitula: up to 25 mm long;

involucral bracts: numerous, very rigid, very acute, up to 5 cm long, spinose-serrate or strongly spiny, floral bracts often augmented with a tooth above or tricuspidate.

[see under *billardieri* for latin etc]

Syria-Palestine Post 1932

Presented under *billardieri* (copy of description earlier under that)-

4. *E. billardieri* Laroche (1808)

Plant: (Perennial) (ii. 825). 0.5 to 0.8 m, corymbose above; plant, except lower leaves, amethyst-colored.

Root-leaves: orbicular in outline often 15 to 20 cm broad, 3-5-palmately parted, segments ovate in outline, 2-3-parted into broad, linear lobes, coarsely incised-prickly.

Involucre-leaves: 7-9, alternating with long, needle-like prickles, linear-lanceolate, subulate, prickly below, twice to thrice as long as 1.5 to 2 cm long heads.

Fl.: July, Aug. Alpine and subalpine.

b. Kotschy Boiss. (1872; *E. Kotschy* Boiss. 1856). **Root-leaves** more dissected, often with narrowly linear lobes; **external paleae** sometimes 1-toothed at apex-Akac-Dagh, and northward (PH).

maritimum

PoWo - Coasts of Europe, Mediterranean, Black Sea + some global introductions: **native**: Albania, Algeria, Balears, Baltic States, Belgium, Bulgaria, Corse, Cyprus, Denmark, East Aegean Is., France, Germany, Great Britain, Greece, Ireland, Italy, Kriti, Krym, Lebanon-Syria, Libya, Morocco, Netherlands, North Caucasus, Norway, NW. Balkan Pen., Palestine, Poland, Portugal, Romania, Sardegna, Sicilia, South European Russia, Spain, Sweden, Transcaucasus, Tunisia, Turkey, Turkey-in-Europe, Ukraine; **introduced**: New Jersey, New South Wales, New York, North Carolina, Ontario, Virginia

Flora of Turkey 1972

3. *E. maritimum* ...

Plant: Glaucous, rigid perennial.

Stems: 20-35 cm, stout, striate and angled, widely branched.

Basal leaves: persistent, thickly coriaceous, suborbicular with large triangular spine-tipped teeth.

Median and upper cauline leaves: similar but subsessile and smaller.

Inflorescence: glaucous, divaricately-paniculate,

capitula: 3-15, ovoid, 10-25 mm diam.

Bracts: 5, foliose, ovate, with a few large broad spine-tipped teeth, 1-2 = capitulum.

Bracteoles: all tricuspidate.

Fl.: 6-8. Coastal sands.

Geo: Coasts of Turkey and Islands. A1 A2 A3 A4 A6 A7 B1 C1 C3 Is. - Shores of W. Europe, Mediterranean and Black Sea.

USSR 1950

13, *E. maritimum* L. Sp. pl. (1753) 233; M.B. Fl. taur.-cauc. I, 201; Ldb. Fl. Ross. II, 238; Boiss. Fl. or. II, 829; Shmal'g., Fl. I, 384; Voronov in Vestn. Tifl. Bot. Sada, X, 4; Wolff in Pflzr. Heft 61, 122; Grossg., Fl. Kavk. III, 121.- *E. maritimum tauricum* Fisch. Cat. Hort. Gorenk. (1812) 47.- Exs.: Schulz, Herb. norm. No. 2641; Fl. ital. exs. No. 1707.

Plant: Bluish-gray perennial, 40-70 cm high;

stem: robust, ca. 1 cm thick at base, spreading-branching, above with forked branches;

petioles of radical leaves: not shorter than blades;

blades: hard-coriaceous, rounded, entire, rarely 3-lobed, median lobe much smaller than the lateral, largely spinose-dentate, with sharply prominent nerves;

cauline leaves: decurrent on short broad petiole, deeply trifid, with teeth tapering into spines.

Heads: globular, 1-2 cm becoming 3cm long;

involucre: of 5, rhombic, 2-4 cm long, trifid,

involucral leaflets: with broadly triangular-spinose teeth;

bracts: to 12 mm long, exceeding flowers, 3-cuspidate; calyx-teeth lanceolate, tapering to cusp, to 5 mm long;

fruit: compressed-ovoid, 12-15 mm long, with large lateral scales, the upper nearly spinose in ripe

fruit.

Fl.: July, Fr. August.

Hab: Sandy and stony seacoasts.

Described: from sandy shores of W. Europe. Type in London.

Sell3 2009

3. *E. maritimum* L. Sea Holly

Plant: Perennial monoecious herb, perhaps sometimes monocarpic, with strong tap-root.

Stems: 15-60 cm, pale below but usually bluish above, erect, robust, glabrous, rigid, solid and branched.

Leaves: coriaceous, intensely glaucous;

basal: several, 4-10 × 5-15 cm, subrotund in outline, 3(-5)-lobed, the lobes with large spinose teeth, truncate or cordate at base, with thick, prominent veins and a thick, cartilaginous margin, the petiole about as long as the lamina with a broad, swollen base;

cauline: smaller but similar and sessile; all glabrous.

Inflorescence: of pedunculate, subglobose heads 15-30 mm in diameter;

bracts: about as long as the head, ovate or ovate-lanceolate, similar to the leaves in texture, spininess and colour;

bracteoles: tricuspidate, spiny, usually purplish-blue, longer than the flowers.

Sepals: 5, 4-5 mm, longer than the petals, bluish, lanceolate, with a prominent midrib, which is excurrent as a stout spine.

Petals: 5, bluish-white, oblong, emarginate at apex.

Stamens: 5; filaments bluish; anthers yellow.

Styles: 2, about 6 mm, divergent or somewhat recurved, slightly thickened at the base; stigma tapering.

Ovary: with a more or less fl at disc at apex.

Schizocarp: 13-15 mm, obovoid, scarcely compressed, covered in papillae which become longer towards the apex; commissure broad; carpophore absent; vittae very slender.

Flowers: 6-9. $2n = 16$.

Hab: Native. Sand-dunes and less frequently shingle a little above high-tide mark.

Note: Formerly around all the coasts of Great Britain and Ireland, but now gone from most of Scotland and north-east England before 1930. Europe north to about 60° N, and in North Africa and south-east Asia. European Southern-temperate element.

Syria-Palestine Post 1932

E. maritimum L. (1753) 24 [perennial] Sea Holly. (ii. 829; H. i. 617).

Plant: [Perennial] 30-50 cm, glaucous, corymbose; root-stock stoloniferous.

Leaves: coriaceous, coarsely incised-prickly,

the radical: long-petioled, cordate-reniform, undivided or palmately lobed,

the upper: clasping, palmately lobed.

Involucre-leaves: 5, broad-rhomboid, prickly toothed or lobed, somewhat longer than the 2 to 4 cm long heads; upper papillae of the at length fungous calyx-tube, prickly;

calyx-lobes: tender.

Fl./Hab: May, June. Maritime sands.

Geo: No. Latakia; Leb. Beirut (PH); Pal. Tyre, Jaffa (D).

palmito

PoWo - Turkey only

Info: Anemas would be Anamas Dağları, west side of Beyşehir Gölü

Flora of Turkey 1972

12. *E. palmito* Boiss. & Heldr. in Boiss., Diagn. ser. 1(10):21 (1849). Ic: Wolff, op. cit. f. 25 (1913).

Plant: Perennial, with a fibrous collar.

Stems: remotely leaved, at least 0.5 m, 3-4-furcate above.

Basal leaves: palmately dissected into 5-7, narrowly linear, forward-pointing segments up to 20 cm x 2-3 mm, entire or adpressed-setose.

Cauline leaves: similar but with a short vaginate spinulose-margined petiole.

Inflorescence: amethyst, branches subracemose, lax and depauperate, bearing subglobose capitula spinose-margined, 1.5-2 x capitulum.

Bracteoles: all entire, or the outermost tricuspidate.

Fl.: 8. Pine forests.

Geo: Type: [Turkey C3 Isparta] in pinetis umbrosis montis Anemas, Aug. 1845.

Endemic. Medit. element. Allied to the Balkan *E. ternatum* Poiret and *E. serbicum* Pant.

WOLFF1913

26. *E. palmito* (*E. Palmito*) Boiss. et Heldr. in Boiss. Diagn. ser. I. 10. (1849) 21; Boiss. Fl. orient. II (1872) 821.

Plant: half a meter or more tall, amethyst above.

Stems: 1 or several, remotely leafy, furnished above with abbreviated branches, 3-4-forked at apex, with branches very short, almost simple or once dichasially divided.

Leaves: thinly coriaceous,

basal ones: borne on a subflattened petiole with about 11-13 nerves, 10-15 cm long, with 5-7 very elongate segments, somewhat grass-like, very narrowly sublinear, up to 20 cm long, 2-3 mm wide, scarcely narrowed posteriorly, very long-acuminate anteriorly, very acute, with appressed, remote, scarcely conspicuous spinules on the margin;

cauline leaves: borne on a broad sheathing petiole, spinulose above, with shorter segments, otherwise scarcely different;

bract leaves: 2-3 times longer than the branches, reduced to a broad, many-nerved sheath with spinulose-serrate margin, bearing some laciniae at apex or merely long-acuminate.

Inflorescences: very depauperate;

capitula: hemispherical;

involucral bracts: 5-6, very rigid, narrowly lanceolate or subulate, produced into a pungent-spinose apex, unarmed on the margin or sparingly spinulose-serrate, up to 3 cm long, up to 4 mm wide;

floral bracts: narrowly subulate, very acute-spiny [general ambivalent quality? tip? unless entire qualifies it as margins?], upper ones entire, up to 9 mm long.

Sepals: broadly ovate, up to 3 mm long;

petals: narrowly lanceolate or sublinear, narrowed into an equally long, sublinear lobe 2-3 times narrower, obtuse at apex, 2 mm long.

Fruit: angularly subturbinate, 6-7 mm long;

dorsal scales: numerous, appressed, acuminate,

basal ones: rounded-obtuse, very small,

lateral ones: uniseriate, lanceolate, acuminate,

calycine ones: biseriate, very acute, scarcely or twice larger than the lateral ones. (Claude adj)

Geo/Hab: Asia Minor zone of the central Mediterranean province: Lycaonia, in dry, shady pine forests in the gorges of the Anemas, at an altitude of 1500 m (Heldreich, Herb. n. 1218 - Herb. Berlin, Herb. Boissier); blooms in August and September.

Planta semimetralis et ultra alta, superne amethystina.

Caules 1 vel plures, remote foliati, superne ramis abbreviatis aucti, apice 3-4-furcati, ramis valde abbreviatis, subsimplicibus vel semel dichasialiter divis.

Folia tenuiter coriacea, basalia petiolo subplano ca. 11-13-nervio, 10-15 cm longo fulta, segmentis 5 - 7 valde elongatis, subgramineis, angustissime sublinearibus, usque 20 cm longis, 2-3 mm latis, postice vix angustatis, antice longissime acuminatis, acutissimis, margine spinulis adpressis, remotis, vix conspicuis instructis;

caulina petiolo lato vaginante, superne spinuloso fulta, segmentis brevioribus, ceterum vix diversis;

fulcrantia ramis 2-3-plo longiora, usque ad vaginam latam, multinerviam, margine spinuloso-serratam, apice lacinias nonnullas ferentem vel tantum longe acuminatam reducta.

Inflorescentiae valde depauperatae;

capitula semiglobosa;

bractae involucrales 5-6 rigidissimae, anguste lanceolatae vel subulatae, in apicem pungenti-spinosum productae, margine inermes vel parce spinuloso-serratae, ad 3 cm longae, ad 4 mm latae;

florales anguste subulatae, spinoso-acutissimae, superiores integrae, usque 9 mm longae.

Sepala late ovata, ad 3 mm longa; petala anguste lanceolata vel sublinearia, in lobulum aequilongum, sublinearem, 2-3-plo angustiore, apice obtusum angustata, 2 mm longa.

Fructus anguloso-subturbinatus, 6-7 mm longus; squamae dorsales numerosae, adpressae, acuminatae, basales rotundato-obtusae, minimae, laterales uniseriatae, lanceolatae, acuminatae, calycinae biseriatae, acutissimae, lateralibus vix vel duplo majores. Fig. 25.

Kleinasiatische Zone der mittleren Mediterranprovinz: Lykaonien, in trockenen, schattigen Kiefernwäldern in den Schluchten des Anemas, in einer Höhe von 1500 m (Heldreich, Herb. n. 1218 - Herb. Berlin, Herb. Boissier); blüht im August und September.

Transcription: AI then checked against image then winmerge-checked against OCR

planum

PoWo - Native: Altay, Austria, Central European Russia, Czechia-Slovakia, East European Russia, Germany, Hungary, Kazakhstan, Krym, Mongolia, North Caucasus, NW. Balkan Pen., Poland, Romania, South European Russia, Transcaucasus, Turkey-in-Europe, Ukraine, West Himalaya, West Siberia, Xinjiang [+Turkey]; **introduced:** Alberta, British Columbia, Colorado, Connecticut,

Denmark, District of Columbia, Finland, Great Britain, Illinois, Ireland, Manitoba, Massachusetts, Michigan, Nebraska, New York, Northwest European Russia, Norway, Ontario, Oregon, Pennsylvania, Primorye, Québec, Saskatchewan, South Dakota, Sweden, Vermont, Wisconsin, Yakutiya

Flora of Turkey 1972

7. *E. planum* L., Sp. Pl. 233 (1753). Ic: Reichb., Ic. Fl. Germ. 21: t. 1848 (1863); Fiori, Ic. Fl. Ital. f. 2237 (1899).

Plant: Biennial or perennial.

Stem: 15-75 cm, terete, branched above.

Basal leaves: persistent, oblong to ovate-oblong, 5-12 x 1.5-9 cm, ± cordate at base, subcoriaceous, crenate-muticous, persistent at flowering time.

Median cauline leaves: sessile, ovate and incised-spinose;

upper leaves: deeply palmatifid into linear-oblong spinulose lobes.

Inflorescence: bluish, ascending-paniculate; capitula 5-20, globose-ovoid, 10-15 mm diam.

Bracts: 6-8, linear, pungent, sparsely spinose towards base, subequal to 1.5 x capitulum.

Bracteoles: all entire.

Fl.: 7-9. Dry places.

Described: from the Danube near Vienna, and from Silesia (Hb. Cliff., Hb. Linn, 331/5!).

Geo: N.W. Turkey, rare. A2(E) - C. Europe eastwards to Siberia and C. Asia.

Note: Allied to the W. Mediterranean *E. dichotomum* Desf. Grossheim (Fl. Kavk. 7: map 12) plots a record very near the Turkish border of Georgia, S.W. of Akhalkalaki. No Turkish material has been seen.

USSR 1950

11. *E. planum* L., Sp. pl. (1753) 233; Boiss. Fl. or. II, 823; Shmal'g., Fl. I, 384; Wolff in Pflzr. Heft 61, 127; Kryl., Fl. Zap. Sib. VIII, 2036; Grossg., Fl. Kavk. III, 121. - *E. alpinum* Pall. Reise, I (1771) 31, nom. - *E. planifolium* Pall. l.c. III (1776) 316, nom. - *E. amethystinum* Gmel. Reise II (1774) 196, nom. - *E. latifolium* Gilib. Fl. lithuan. IV (1785) 33. - *E. coeruleum* Gilib. l. c. 33. - *E. pusillum* Gilib. l. c. 34, non L. - ? *E. pumilum* Gilib. Chlor. Grodn. (1785) 20. - *E. intermedium* Weinm. in Bull. Soc. Nat. Mosc. X, 7 (1837) 59; Ldb. Fl. Ross. II, 239. - l.c.: Fl. Yugo-Vost. V, fig. 508. - Exs.: G. R. F. No. 416; Fl. exs. austro-hung. No. 1352.

Plant: Perennial with straight main root;

stems: solitary, 30-80 cm, to 1 m high, sometimes few, smooth, branching in upper part, often bluish, surrounded at base by remains of dead leaves;

leaves: stiff or thin-coriaceous,

the radical: 5-15 cm long, 2-7 cm wide, entire, the petioles as long as the blades; blades oblong or ovate or obovate, obtuse above, spinose-dentate or crenate, subcordate at base;

cauline leaves: sessile, much shorter,

the upper: 3-5-partite, dentate.

Heads: ovoid, ca. 1.5 cm long, ca. 1 cm across;

leaflets of involucre: 5-7, stiff, linear, acuminate, cuspidate-dentate, 2-3 cm long, 2-6 mm wide;

bracts: 5-6 mm long, thinly acuminate,

the lower: 3-cuspidate,

the upper: entire, as long as calyx;

calyx-teeth: lanceolate, acuminate, elongating into long (ca. 2 mm) spine;

petals: hardly shorter than lobes of calyx, oblong, with narrow fimbriate recurved lobe;

fruit: compressed-ovoid, 5-6 mm long, usually covered to middle with narrow flat acuminate scales.

Fl.: June-July, Fr. July- August.

Hab: Forb and grassy steppes, semidesert zones of river valleys, forest steppes and forest zones in dry valleys and sands...

Described: from E. Europe (European Russia, Poland). Type in London.

Sell3 2009

Plant: Perennial monoecious herb, with a tap-root.

Stem: 25-180 cm, pale green, sometimes suffused with purple, erect, striate, smooth, glabrous, branched, leafy.

Leaves: slightly coriaceous, medium to dark green or glaucous on upper surface, paler beneath;

basal: persistent, numerous; the lamina 5-22 × 3-11 cm, broadly oblong or oblong- ovate, rounded at apex, crenate-dentate, the teeth broadly and shallowly mammiform, and cordate at base, the petioles unwinged, pale green, channelled on upper surface, rounded beneath and glabrous;

cauline: gradually getting smaller up the stem, the lower ovate, rounded at apex, crenate-dentate and sessile, the upper ovate in outline, divided almost to base into 5 linear or lanceolate, acute, spiny-toothed lobes and sessile; all glabrous.

Inflorescence: usually bluish, of pedunculate, globose to ovoid heads 10-20 × 10-15 mm, arranged in a broad, subcorymbose panicle;

bracts: 6-7, 15-25 mm, longer than the head, dark greyish-green, linear or linear-lanceolate, with 1-4 pairs of spinose teeth;

bracteoles: entire or 3-cuspidate.

Sepals: 5, about 2 mm, ovate-lanceolate, aristate.

Petals: 5, blue, emarginate.

Stamens: 5; filaments pale blue; anthers yellow.

Styles: 2, pale blue, exceeding anthers; stigma cream.

Ovary: with a more or less flat disc at apex.

Schizocarps: 5-6 mm, subglobose, more or less densely covered with overlapping scales; mericarps plano-convex, slightly ridged; carpophore absent; vittae usually slender.

Flowers: 8-9. $2n = 16$.

Geo: Introduced. Grown for ornament and sometimes naturalised in waste places. Scattered localities over Great Britain, notably on sandy ground at Littlestone in Kent, and in Lanarkshire. Native of central and south-east Europe and south-west Asia.

polycephalum

PoWo - Turkey only

Flora of Turkey 2001

20.: *E. polycephalum* Hausskn. ex Wolff in Engler, Pflanzenr. 61 (IV. 118): 153 (1913). [4: 304]. Syn: *E. hedgeanum* Kit Tan & Yildiz in Notes R.B.G. Edinb. 45: 443, f. 2(1988)!

Note: *E. polycephalum* was described under "Species incompletely known" in Flora of Turkey 4:304. Later a specimen collected in 1981 (B6 Maraş: Göksun, west slope of Berit Dağ, calcareous stony Astragalus steppe, 1500-1700 m, 25 vii 1981, B. Yıldız 3150!) was described as *E. hedgeanum* Kit Tan & Yildiz. Examination of the type of *E. hedgeanum* (E!) and comparison with the type of *E. polycephalum* (G!) clearly showed that the two species are conspecific. A revised description is given below.

Plant: Glabrous, perennial with a fibrous collar.

Flowering stems: erect, 50-150 cm, unbranched, yellowish-green.

Basal leaves: persistent, with a 5-10 cm petiole, coriaceous; lamina suborbicular in outline, 5-10 cm, dissected and ternately compound, prominently veined, glaucous; lobes broadly ovate to suborbicular, overlapping, dentate, spines short, 1-3 mm.

Median cauline leaves: petiolate; petioles 1-3 cm, apically expanded, amplexicaul, with c. 1 mm auricles, margins not spiny; lamina trisect to midrib, lobes divided to less than 1/3.

Floral leaves: sessile, tripartite, c. 2 cm, lobes entire.

Inflorescence: 25-60 cm, spicate below, umbellate above, yellowish-green.

Involucral bracts: 5-7, unequal, linear-lanceolate, 10-20 mm, entire, shorter than or equalling capitula, 2 mm wide and 3-5-veined at base, spiny.

Capitula: 25-50, hemispherical to subglobose, 10-15 x 15-20 mm (excl. involucral bracts).

Bracteoles (paleae): all entire, linear. 5-7 mm, ± equalling flowers.

Sepals: obovate, 2.5-3 mm, longer than corolla, with thickened midvein ending in a spinose tip.

Corolla: c. 2 mm, cream.

Style: exserted.

Fruits: oblong, c. 4 mm, densely covered with scarious scales, lateral scales longer than those on dorsal and ventral surfaces.

Fl.: 7-8. Steppes, 1450-1850 m.

Type: [Turkey B7 Adıyaman] Auf dem Ak-Dagh, zwischen Adıyaman [Adıyaman] und Malatya [Malatya], Haussknecht (holo. G!).

Geo: S. Anatolia. C4 Konya: Hadım. Hadım-Beyreli, 1870 m, 36° 57'N; 32° 23.3'E.; C5 Mersin: Arslanköy, Boğazağzı, 1820 m; B6 Maraş: Göksun, west slope of Berit Dağ. 1500-1700 m (type of *E. hedgeanum*); Göksun, Çardak, Tülüce Tepe. 1450-1850 m; Göksun, Binboğa Da., E. of Doğankonak, 1600-1700 m; Sivas: Şarkışla, Ömerli villages, Karababa Da.. 1700-1750 m; [turkiyebitkiler.com also has Akseki pics]. Endemic. Ir.-Tur. element.

PDF RBGE 1988

Eryngium hedgeanum Kit Tan & Yildiz, sp. nov. Fig. 2.

Plant: Glabrous rigid perennial with a fibrous collar.

Flowering stem: solitary, erect, c. 50 cm, unbranched, yellowish-green.

Basal leaves: persistent, with 5 cm petiole, coriaceous; lamina suborbicular in outline, c. 5 cm, dissected and ternately compound, prominently veined, glaucous; lobes broadly ovate to suborbicular, overlapping, dentate, spines short, 1-2 mm.

Median cauline leaves: petiolate; petioles 1-1.5 cm, apically expanded, amplexicaul, with c. 1 mm auricles, margins not spiny; lamina trisect to midrib, lobes divided to less than 1/3.

Floral leaves: sessile, tripartite, c. 2 cm, lobes entire.

Inflorescence: c. 25 cm, spicate below, umbellate above, yellowish-green.

Involucral bracts: 5-6, unequal, linear-lanceolate, 10-15 mm, entire, shorter than capitula, 2 mm wide and 3-5-veined at base, spiny.

Capitula: 25-30, hemispherical to subglobose, 10-15 x 15-20 mm (excl. involucral bracts).

Bracteoles (paleae): all entire, linear, 5-7 mm, \pm equalling flowers.

Sepals: obovate, 2.5-3 mm, longer than corolla, with thickened midvein prolonged into spinose tip.

Corolla: c. 2 mm, colour unknown.

Style: exserted.

Ovary: 2 mm, densely covered with scarious scales; lateral scales longer than those on dorsal and ventral surfaces.

Fruits: immature.

Fl.: July to August.

Geo: Type: Turkey B6 Maraş: Goksun, west slope of Berit Dağ, calcareous stony Astragalus steppe, 1500-1700m, 25 vii 1981, B. Yildiz 3150 (holo. E, photo. HUB).

Note: Endemic. A very distinct taxon unique in having apically expanded, amplexicaul, shortly auriculate petioles without spiny margins. Only known from a solitary collection on Berit Dağ and efforts will certainly be made in the near future to re-collect it. It is a pleasure to name this *Eryngium* after Ian C. Hedge, a botanist well familiar with Turkish and Iranian Umbelliferae.

Wolff 1913

Species perhaps belonging here, incompletely known.

E. polycephalum Hausskn. msc. in Herb. Boissier.

Plant: apparently very tall;

stem: thick, below..., above furnished with few alternate branches, at apex 5-forked, branches twice or thrice 3-5-forked-branched.

Upper cauline leaves: semi-orbicular, subpalmately-divided, segments deeply spinose-incised-serrate.

Prophylls: all small.

Capitula: large, subglobose or semi-globose-ovoid many-flowered;

involucral bracts: unequal, linear-lanceolate or somewhat subulate, subtricuspidate or on each side of middle unidentate, ± 2 cm long, shorter than rather soft capitula;

floral bracts: rather rigid, subulate, entire, acute.

Sepals: ovate, acuminate, briefly mucronate;

petals:...

Fruit: 7-9 mm long; mericarps very flat; dorsal scales numerous, flattened, acute or rather obtuse, gradually larger toward sepals, calycine scarcely different from those, lateral narrow, divaricate, acute; commissural none.

Geo: On Ak-Dagh, between Adiaman and Malatia (Haussknecht); [Gemini note on this description - Ak-Dagh the prominent peak in Malatya Mountains (part of the Anti-Taurus range) in eastern Turkey. Historically and geographically, located in the Çelikhan district of the Adıyaman province.]

Fruiting: with ripe fruits in September.

Afghanistan (Herb. late East Ind. Comp. n. 2597).

Species forsan huc pertinens, incomplete nota.

E. polycephalum Hausskn. msc. in Herb. Boissier. - Planta ut videtur altissima; caulis crassus, inferne . . . , superne ramis paucis alternis instructus, apice 5-furcatus, ramis bis vel ter 3-5-furcato-ramulosis. Folia caulina superiora semiorbicularia, subpalmato-partita, segmentis profunde spinoso-inciso-serratis. Prophylla omnia parva. Capitula magna, subglobosa vel semigloboso-ovoidea multiflora; bracteae involucrales inaequales, lineari-lanceolatae vel subsubulatae, subtricuspidatae vel medio utroque latere unidentatae, ± 2 cm longae, capitulis molliusculis breviores; florales rigidulae, subulatae, integrae, acutae. Sepala ovata, acuminata, breviter mucronata; petala . . . Fructus 7-9 mm longus; mericarpiis valde plana; squamae dorsales numerosae, applanatae, acutae vel obtusiusculae, ad sepala versus sensim majores, calycinae ab illis vix diversae, laterales angustae, divaricatae, acutae; commissurales nullae.

Auf dem Ak-Dagh, zwischen Adiaman und Malatia (Haussknecht); mit reifen Früchten im September. - Afghanistan (Herb. late East Ind. Comp. n. 2597).

Transcription: AI then checked against image then winmerge-checked against OCR

pseudothorifolium (pseudothoriifolium)

PoWo - Turkey only

Note that some *Pimpinella* have very similar leaves! See "[Pimpinella enguezekensis \(Apiaceae\), a new species from East Anatolia Region \(Turkey\)](#)", 2016, p. 6

Flora of Turkey 1988

2a. *E. pseudothoriifolium* Contandr. & Quézel in Bull. Soc. Bot. Fr. 123:422 (1976).

Differing from *E. thorifolium* Boiss. [4:294] by

Leaves: its subtrapezoid radical leaves, broader in upper 1/3, with base not or scarcely cordate, and more reticulate-veined;

stems: very slender, bearing only 1-3 capitula;

cauline leaves: distinct;

capitula: 10 mm diam.;

bracts: short, 10-12 mm, with acute apex. $2n=16$.

Fl.: 6. On marly soil, c. 100m.

Geo: Type: [Turkey C2 Muğla] terrain marneux dans la haute vallée du Koça çay à une trentaine de kilomètres au N.-E. de Fethye [sic], 100 m, 22 vi 1973. Endemic. E. Medit. element.

Note: Very close to *E. thorifolium* Boiss. [4:294] but with different edaphic requirements, *E. thorifolium* being a serpentine endemic.

pyramidale

PoWo - Iran, Iraq, Turkey

Flora of Turkey 1972

11. *E. pyramidale* Boiss. & Hausskn. in Boiss., Fl. Or. 2:829 (1872). Ic: Wolff, op. cit. f. 5b (1913) leaf.

Plant: Large, glaucescent perennial (or monocarpic?).

Stems: about 1.5 m, pyramidally branched.

Basal leaves: ± persistent and coriaceous, 25-40 cm long, simple, tripartite or even pinnatisect into decurrent obovate segments with a serrate- or crenate-spinulose margin.

Cauline leaves: oblong, serrate (fide Wolff), the uppermost inflorescence leaves small and palmatifid.

Inflorescence: large, lax, ivory-branched;

capitula: subsessile and pedunculate, subglobose, 1.5-2.5 cm diam.

Bracts: 5-9, lanceolate, pungent, several-spined at the base.

Bracteoles: longer than flowers, the outer tricuspidate, the inner entire.

Fl.: 7-8. Dry eroded banks, ruins, 500-1500 m.

Geo: Type: [Iran] in monte Awiheng Persiae austro-occidentalis, 2130 m, Haussknecht. E. (southern) Anatolia. C7 C8 C9 N. Iraq, W. Iran. Ir.-Tur. element.

Note: A magnificent plant with no close allies.

Flora Iranica 1987

3. *E. pyramidale* Boiss. & HAUSSKN. in Boiss, Fl. Or. 2: 829 (1872). Icon.: WOLFF in ENGLER, Pflanzenr. IV, 228, 61: 8, fig. 5g (1913), folium. - Tab. nostr.: 8, 9, 10. Typus: "Hab. in monte Awiheng Persiae austro-occidentalis, VIII. 1867", HAUSSKNECHT, G; isotypus LE!

Plant: Perennial plants, monocarpic (?), robust, glaucescent-green, with thick vertical roots.

Stems: to 1.5 m tall, 20-25 mm thick at base, in the upper part furnished with subopposite or ternate paracladia to 60 cm long, forming a large, narrowly paniculate, pyramidal synflorescence.

Leaves: coriaceous;

basal leaves: very large, broadly obovate in outline, to 40-50 × 15 cm, with short, dilated petioles, sheathing at base, blades deeply trisect, with large segments, obovate or oblong-obovate, obtuse, reticulate-veined, margin sharply serrate or crenate, with subequal, rigid teeth; central segments short-petiolate, lateral segments sessile, decurrent at base;

subtending leaves: short-petiolate or sessile and auriculate-subamplexicaul, palmately divided.

Diplosciadia: sessile or short-pedunculate, medium-sized, globose-ovoid, 15-20 mm in diameter.

Bracts: 5-9(-12), lanceolate-linear, to 20 × 4 mm, rigid, pungent, with 2-3 spinules on each side at base, equalling the diplosciadia or slightly shorter.

Outer bracteoles: tricuspidate,

inner ones: entire, slender, scarcely exceeding the flowers.

Calyx: teeth oblong-elliptic, long-mucronate, 3-3.5 mm long, glabrous.

Fruit: to 8 mm long; mericarps with numerous scales, dorsal ones lanceolate, attenuate at apex, minutely papillate on surface, lateral ones similar but twice as large.

(Claude)

Distr. gen.: Anatolia, Iraq, Persia.

Plantae perennes, monocarpicae (?), robustae, glaucescenti-virides, radicibus crassis verticalibus. Caules ad 1.5 m alti, basi 20-25 mm crassi, in parte superiore paracladiis suboppositis vel ternatis, ad 60 cm longis instructi, synflorescentiam magnam, anguste paniculatam, pyramidalem formantes. Folia coriacea; radicalia permagna, ambitu late obovata, ad 40-50 x 15 cm, petiolis brevibus, dilatatis, basi vaginatis, laminis profunde trisectis, segmentis magnis, obovatis vel oblongo-obovatis, obtusis, reticulato-nervulosis, margine argute serratis vel crenatis, dentibus subaequalibus, rigidis; centralibus brevipetiolatis, lateralibus sessilibus, basi decurrentibus; folia fulcrantia brevipetiolata vel sessilia et auriculato-subamplexicaulia, palmatifida. Diplosciadia sessilia vel brevipedunculata, mediocria, globoso-ovoidea, 15-20 mm diam. Bractee 5-9(-12), lanceolato-lineares, ad 20 x 4 mm, rigidae, pungentes, basi utrinque 2-3-spinulosae, diplosciadiis aequilongae vel eis subbreiores. Bracteolae externae tricuspidatae, internae integrae, graciles, flores vix superantes. Dentes calycini oblongo-elliptici, longe mucronati, 3-3.5 mm longi, glabri. Fructus ad 8 mm longus; mericarpi squamis numerosis, dorsalibus lanceolatis, apice attenuatis, facie minute papillatis, lateralibus similibus sed duplo majoribus.

Wolff 1913

24. E. pyramidale Boiss. et Hausskn. in Boiss. Fl. orient. II. (1872) 829.

Plant: one and a half meters tall, glaucescent-green, with a remarkably pyramidal habit.

Stem: thick, furnished above with subalternate branches up to 60 cm long, at the apex...

Leaves: coriaceous, basal ones 40-50 cm long, supported by a short very broadly sheathing petiole, broadly obovate in outline, divided to the base into three segments, the middle segment subpetiolulate or sessile, the lateral ones more or less long-decurrent to the petiole, all obovate or obovate-oblong, obtuse, sharply serrate along the entire margin, with subequal, rigid teeth produced into a short spinule, traversed by numerous very closely spaced nerves almost forming a broad midrib, moreover remarkably densely reticulate-veined, up to 30 cm long, 5-10 cm wide;

cauline leaves: very numerous, shortly petiolate or amplexicaul-sessile, oblong, undivided, serrate, gradually smaller, the uppermost very small and acute.

Heads: rather large, globose-ovoid, up to 15 mm long;

involucral bracts: 5-9, very rigid, lanceolate-linear, spinose-very acute, margin sparingly spinose, up to 2 cm long, to 4 mm wide, furnished at the base with simple or ternate spines;

lower floral bracts: rather broad, upper ones slender, 6-8 mm long, scarcely exceeding the flowers.

Sepals: oblong-lanceolate, prominently veined when dry, 3-3.5 mm long;

petals: oblong, papillose, furnished with an inflexed lobule of subequal length, narrowly sublinear, with an obtuse or crenulate introse apex, 2-2.5 mm long.

Fruit: not fully mature, 8 mm long, and covered with numerous dorsal scales that are lanceolate acute, the lateral ones curved, twice as large as the dorsal ones.

Armenisch-iranische Mediterranprovinz: Südwest-Persien, auf dem Berge Awiheng, 2300 m ü. M. (Haussknecht - Herb. Haussknecht, Herb. Boissier); Kurdistan (Ost-Assyrien), östlich von Erbil auf dem Berge Kuh-Sefin, 1000 m ü. M. (Bornmüller, It. pers.-turc. n. 1227).

24. E. pyramidale Boiss. et Hausskn. in Boiss. Fl. orient. II. (1872) 829. - Planta sesquimetralis, glaucescenti-viridis, habitu eximie pyramidalis. Caulis crassus, superne ramis suboppositis usque 60 cm longis auctus, apice . . . Folia coriacea, basalia 40-50 cm longa, petiolo brevi latissime vaginante fulta, ambitu late obovata, usque ad basin trisecta, segmento medio subpetiolulato vel sessili, lateralibus ad petiolum ± longe decurrentibus, omnibus obovatis vel obovato-oblongis, obtusis, margine toto argute serratis, dentibus subaequalibus, rigidis, in spinulam brevem productis, nervis pluribus valde contiguis et costam latam fere formantibus percursis, praeterea eximie denseque reticulato-venosis, usque 30 cm longis, 5-10 cm latis; caulina numerosissima, breviter petiolata vel amplexicauli-sessilia, oblonga, indivisa, serrata, sensim

minora, summa perparva et acuta. Capitula majuscula, globoso-ovoidea, usque 15 mm longa; bracteae involucrales 5-9 rigidissimae, lanceolato-lineares, spinoso-acutissimae, margine parce spinosae, usque 2 cm longae, ad 4 mm latae, basi spinis simplicibus vel ternatis auctae; florales inferiores latiusculae, superiores graciles, 6-8 mm longae, flores vix superantes. Sepala oblongo-lanceolata, in sicco prominenter venosa, 3-3.5 mm longa; petala oblonga, papillulosa, lobulo inflexo subaequilongo, anguste sublineari, apice introrso obtuso vel crenulato instructa, 2-2.5 mm longa. Fructus haud plane maturus 8 mm longus, et squamis dorsalibus numerosis lanceolatis acutis, lateralibus curvatis quam dorsales duplo majoribus obsitus.

Transcription: AI then checked against image then winmerge-checked against OCR

ternatum (Crete in Greece)

[PoWo](#) - Crete only

Atlas of the Aegean 2016

Eryngium ternatum Poir. - Map 238 - Plate 6: 9

Plant: Perennial;

stems: 30-70 cm, rather weak and slender, somewhat glaucous above and in the inflorescence.

Basal and lower cauline leaves: with narrowly winged petiole; blade 3-sect into long, linear-lanceolate segments, remotely and rather softly spinulose.

Inflorescence: with few, broadly ovoid capitula, 12-18 mm wide.

Bracts: 5-9, linear-lanceolate, acuminate, exceeding capitula.

Bractlets: 3-cuspidate.

Geo: This distinctive Cretan endemic is mostly found in the narrow gorges in the S foothills of Lefka Ori.

Flora Europaea 1968

15. *E. ternatum* Poiret in Lam., Encycl. Méth. Bot., Suppl. 4: 295 (1816).

Plant: Perennial;

stems: 30-60 cm, erect.

Basal leaves: persistent, slightly coriaceous; lamina 3-sect;

segments: 10-30 x 0.5-1 cm, linear, undivided, with soft, ascending marginal spines; petiole narrowly winged.

Inflorescence: with 3-6 pedunculate, hemispherical capitula 1.5-2 cm.

Bracts: 2-3 cm, 5-9, linear-acuminate, usually with a pair of spinescent teeth near base;

bracteoles: 3-cuspidate.

Sepals: 2-3 mm, ovate, shortly aristate.

Hab: Dry places.

Geo: Kriti. Cr.

Wolff 1913

Section IX. Palmito Wolff.

Palmito Wolff.

Perennial plants.

Lower leaves of flowering plant: divided palmately to the naked or setose-laciniate petiole into 3-7 segments, with segments greatly elongated, narrow, linear to linear-lanceolate, undivided or divided into narrow elongated lobes.

Floral bracts: all tricuspidate or inner ones entire.

3 species, of which one is native to the Balkan Peninsula, another to the island of Crete, the third to Asia Minor.

Section Palmito forms a highly characteristic group of great age. Closer phylogenetic relationships appear not to exist with any other of our present-day Eryngiums. It possesses three centers of development (origin) and is represented in each of these by only a single species.

Key to the species.

A. Leaf segments 3, linear-lanceolate, margin almost unarmed -- 25. *E. ternatum*.

B. Segments 5-9, very narrow, almost linear.

a. Petiole margin naked; segments undivided, obscurely setulose -- 26. *E. palmito*.

b. Petiole margin on upper side setose or setose-laciniate; segments undivided or more often narrowly pinnatifid -- 27. *E. serbicum*.

25. *E. ternatum* Poir. in Lam. Encycl. méth. Bot. Suppl. IV. (1816) 295; Tausch, Hort. canal. I. (1823) t. 5; DC. Prodr. IV. (1830) 91; Boiss. Fl. orient. II. (1872) 822; Halácsy, Consp. fl. graec. I. (1901) 614; Herb. Willd. n. 5572. - *E. alpini* Sieb. Avis rem. 3. - *E. Tournefortianum* Sternbg. Syll. Ratisb. XVII. (1824) 32. - *E. trifolium* Prosp. Alp. Exot. I. (1627) 153 et ic. pg. 152. - *E. trifolium* Alpinum Bobart. in Moris. Hist. oxon. III. (1699) Sect. 7, t. 36, fig. 24.

Plant: up to half a meter tall, furnished with a thick somewhat woody root.

Stem: rather slender, few-leaved, simple, 4-forked at apex, with abbreviated branches, once or twice dichasially divided.

Leaves: thinly coriaceous when dry, basal older ones linear-lanceolate, simple, gradually narrowed as into a petiole, margin setose-serrate, later-formed ones supported by a petiole 3-5 mm wide, multi-nerved, approximately equaling the lamina, with segments linear-lanceolate, often somewhat petiolulate, very long-acuminate, very acute, margin remotely and appressedly spinulose, subparallelly 3-5-nerved, elongate-reticulately veined near the margin, 15-20 cm long, 8-12 mm wide; cauline ones supported by a broadly sheathing petiole or sessile, with segments as in basal leaves, rarely unarmed (f. *inermis* Halácsy).

Heads: globose-ovoid, 10-12 mm long;

involucral bracts: 6-8, rigid, furnished at base with single to three reflexed spinules;

floral bracts: linear, slenderly and long-tricuspidate, exceeding the flowers; sepals about 2¼ mm long; petals papillose, ovate-oblong, narrowed into a lobe of equal length, half as narrow, obtuse at apex, about 2 mm long.

Fruit: 5-6 mm long; mericarps clothed with narrow, curved, acute lateral scales and smaller straight calycine ones, furnished on back with thick, flattened, margin-serrate ridges, smooth on the broad flat face.

Geo: Central Mediterranean Province: Endemic species on Crete, on rocks in the submontane region: gorge of Nipros (Sieber); near Aradhena (Spreitzenhofer); Imbros (Krinos - Herb. Heldreich); Hagia Rumeli and Samaria (Baldacci, It. cretic. II. n. 233);

flowers: in June.

Sect. IX. Palmito Wolff.

Palmito Wolff. - Plantae perennes. Folia pl. florentis inferiora usque ad petiolum nudum vel setoso-laciniatum palmato-3-7-partita, segmentis valde elongatis, angustis, linearibus usque lineari-lanceolatis, indivisis vel in lacinias angustas elongatas divis. Bracteae florales omnes tricuspidatae vel interiores integrae. - Species 3, quarum una paeninsulae balcanicae, altera insulae Cretae, tertia Asiae minori propria.

Die Sektion Palmito bildet eine höchst charakteristische Gruppe von hohem Alter. Nähere verwandtschaftliche Beziehungen scheinen zu keinem anderen unserer jetzigen Eryngien zu bestehen. Sie besitzt drei Entwicklungs(Entstehungs)centren und ist in jedem derselben nur durch eine Art vertreten.

Clavis specierum.

A. Segmenta foliorum 3 lineari-lanceolata, margine subinermia -- 25. E. ternatum.

B. Segmenta 5-9, angustissima, sublinearia.

a. Petiolus margine nudus; segmenta indivisa, obsolete setulosa -- 26. E. palmito.

b. Petiolus margine superiore setosus vel setoso-laciniatus; segmenta indivisa vel saepius anguste pinnatifida -- 27. E. serbicum.

25. E. ternatum Poir. in Lam. Encycl. méth. Bot. Suppl. IV. (1816) 295; Tausch, Hort. canal. I. (1823) t. 5; DC. Prodr. IV. (1830) 91; Boiss. Fl. orient. II. (1872) 822; Halácsy, Consp. fl. graec. I. (1901) 614; Herb. Willd. n. 5572. - E. alpini Sieb. Avis rem. 3. - E. Tournefortianum Sternbg. Syll. Ratisb. XVII. (1824) 32. - E. trifolium Prosp. Alp. Exot. I. (1627) 153 et ic. pg. 152. - E. trifolium Alpinum Bobart. in Moris. Hist. oxon. III. (1699) Sect. 7, t. 36, fig. 24. -

Planta usque semimetralis, radice crassa sublignosa instructa. Caulis sat tenuis, paucifolius, simplex, apice 4-furcatus, ramis abbreviatis, semel vel bis dichasialiter divis. Folia in sicco tenuiter coriacea, basalia vetustiora lineari-lanceolata, simplicia, sensim ut in petiolum angustata, margine setoso-serrata, serius exorta petiolo 3-5 mm lato, multinervio, laminam ± aequante fulta, segmentis lineari-lanceolatis, saepe subpetiolulatis, longissime acuminatis, acutissimis, margine remote et adpresse spinulosis, subparallele 3-5-nerviis, juxta marginem elongato-reticulatim venosis, 15-20 cm longis, 8-12 mm latis; caulina petiolo late vaginante fulta vel sessilia, segmentis ut in fol. bas., raro inermibus (f. inerme Halácsy). Capitula globoso-ovoidea, 10-12 mm longa; bracteae involucales 6-8 rigidae, basi spinulis singulis usque ternis reflexis auctae; florales lineares, graciliter et longe tricuspidatae, flores superantes; sepala ca. 2¼ mm longa; petala papillulosa, ovato-oblonga, in lobulum aequilongum, dimidio angustiore, apice obtusum angustata, ca. 2 mm longa. Fructus 5-6 mm longus; mericarpiis squamis lateralibus angustis, curvatis, acutis, calycinis rectis minoribus obsita, dorso cristis crassis applanatis, margine serratis instructa, ad faciem latam planam laevia.

Mittlere Mediterranprovinz: Endemische Art auf Creta, an Felsen in der submontanen Region: Schlucht von Nipros (Sieber); bei Aradhena (Spreitzenhofer); Imbros (Krinos - Herb. Heldreich); Hagia Rumeli und Samaria (Baldacci, It. cretic. II. n. 233); blüht im Juni.

Transcription: AI then checked against image then winmerge-checked against OCR

thorifolium (thoriifolium)

[PoWo](#) - Turkey only

Note that some Pimpinella have very similar leaves! See "[Pimpinella enguezekensis \(Apiaceae\), a new species from East Anatolia Region \(Turkey\)](#)", 2016, p. 6

Flora of Turkey 1972

2. E. thorifolium Boiss. in Ann. Sci. Nat. ser. 3, 1:122 (1844). Ic: Wolff, op. cit. f. SJ (1913), leaf; Davis et al., Pl. Life S.W. Asia 24 (1971).

Plant: Rigid perennial.

Stem: 80-150 cm, slender, branched above.

Basal leaves: persistent, bizarre, thickly coriaceous, suborbicular-reniform with retuse apex and cordate base, 5-9 x 6-13 cm, crenate-spinose.

Median and upper cauline leaves: subsessile, palmatifid or trifid into spiny lobes.

Inflorescence: greenish, sparsely ascending-paniculate; capitula up to 20, hemispherical, 12-20 mm diam.

Bracts: 6-8, linear-lanceolate, keeled, pungent, 2-6-dentate, 1-3 x capitulum.

Bracteoles: all tricuspidate.

Fl.: 7.

Habitat: Rocky serpentine slopes, often in open Pinus forest, 50-1950 m.

Geo: Type: [S.W. Anatolia] in montibus Lyciae, aest. 1843, Pinard.

S.W. Anatolia. Lycia: Nif Da., 5 vi 1881, Luschan. C1 Muğla: between Datça and Marmaris, 6 km from Emecik, D. 35449! C2 Muğla: Sandras Da., above Agia, 1520 m, D. 13591! C3 Antalya: d.

Kemer, Tekirova, c. 1950 m, Heilbronn & Başarman!

Note: A serpentine endemic, without near allies. E. Medit. element.

Wolff 1913

p123

E. thorifolium (*E. thoraefolium*) Boiss. in Ann. sc. nat. 3. ser. Bot. I. (1844) 122 et Fl. orient. II. (1872) 828.

Plant: Glaucous-green; root cylindrical-turnip-shaped, simple.

Stem: strictly erect, a meter and more, simple, very remotely leaved, at apex 5-7-times forked-branched, with branches ...

Basal leaves: supported by a petiole of equal or greater length, club-shaped above, at apex very blunt or truncate, throughout the margin white callous-thickened toothed, with teeth obliquely triangular, abruptly produced into a rigid spine of nearly equal length, decreasing toward the base, the lowest spine-shaped and directed downward, subpalmately 9-11-nerved, with nerves slightly arched, equally prominent on both sides, repeatedly bifurcate, up to 7 cm long, up to 12 cm wide;

lower stem leaves: small, supported by a short many-nerved petiole, ± rounded, many-toothed,

uppermost: sessile, trifid, with linear, spiny lobes.

Heads: small;

involucral bracts: 5-6 very rigid, linear-lanceolate, pungent-very acute, keeled beneath, two-toothed at base;

floral bracts: all three-cuspidate, with elongated, very acute cusps, the middle one longer.

Sepals: ovate, very blunt, traversed by a thick nerve passing into a short mucro.

Petals:...

Fruit: according to the distinguished Boissier "naked". - Fig. 5J. ...

Note: The distinguished Boissier wrote that the native locality of the plant detected by the distinguished Pinard was in Ann. sc. nat. l. c. in Lycia, in Fl. orientali in Caria.

Glaucoviride; radix cylindrico-napiformis, simplex. Caulis stricte erectus, metralis et ultra, simplex, remotissime foliatus, apice 5-7-furcato-ramosus, ramis ... Folia basalia petiolo aequilongo vel longiore, superne clavato fulta, apice obtusissima vel truncata, margine toto albide calloso-incrassato dentata, dentibus oblique triangularibus, subito in spinam rigidam subaequilongam productis, ad basin versus decrescentibus, imis spiniformibus et deorsum spectantibus, subpalmato-9-11-nervia, n. leviter arcuatis, utrinque aequaliter prominentibus, repetite bifurcatis, usque 7 cm longa, usque 12 cm lata; caulina inferiora parva, petiolo brevi multinervio fulta, ± rotundata, multidentata, suprema sessilia, trifida, lobis linearibus, spinosis. Capitula parva; bractae involucrales 5-6 rigidissimae, lineari-lanceolatae, pungenti-acutissimae, subtus carinatae, basi bidentatae; florales omnes tricuspidatae, cuspidibus elongatis, acutissimis, media longiore. Sepala ovata, obtusissima, nervo crasso in mucronem brevem abeunte percurta. Petala ... Fructus ex cl. Boissier "nudus". - Fig. 5J. ... Nota. Cl. Boissier locum natalem plantae a cl. Pinard detectae in Ann. sc. nat. l. c. esse in Lycia, in Fl. orientali in Caria scripsit.

Transcription: AI then checked against image then winmerge-checked against OCR

thyrsoidium

PoWo - Iran, Iraq, Transcaucasus, Turkey

Flora of Turkey 1972

15. *E. thyrsoidium* Boiss. in Ann. Sci. Nat. ser. 3, 1:121 (1844).

Plant: Stout, glaucous perennial. Stems 30-100 cm, densely leaved.

Basal leaves: persistent, coriaceous, rigid, 12-30 cm diam., tripartite, with divaricately divided segments as in *E. campestre* L.

Median and upper cauline leaves: with a short, broad, vaginate petiole subamplexicaul at the base, spiny-margined and reticulate-veined near the edge, those of the inflorescence falcate and longer than the subtended capitula.

Inflorescence: thyrsoideum, cylindrical;

capitula: numerous, subsessile, ovoid-globose, 10-15 mm diam.

Bracts: 5-6, subulate, triquetrous, pungent, entire or remotely spinulose below, 1.5-3 x capitulum.

Bracteoles: all entire, longer than sepals.

Fl.: 7-8 (Iraq). Dry grassy places, 800 m.

Geo: S.E. Anatolia. B9 C9 - W. & N.W. Iran, N. Iraq. Ir.-Tur. element.

Note: Approaching *E. glomeratum* in its thyrsoideum inflorescence and *E. campestre* in the shape of its basal leaves. Though Boissier cites the type (Aucher 3570) as coming from Ararat, at Kew the sheets bearing this number are labelled from Khoi in N.W. Iran. As Aucher travelled from Dogubayazit to Khoi, *E. thyrsoideum* may well have been discovered in Iran. The species is not mapped from Ararat in Fl. Kavkaza.

Flora Iranica 1987

Plant: Perennial, pale green, with vertical roots.

Stems: strictly erect, rigid, 30-100 cm tall, 15 mm thick at the base, densely leafy, with numerous abbreviated paracladia in the middle and upper parts forming a narrowly cylindrical thyrsoideum synflorescence half a meter long.

Basal leaves: petiolate, with petioles approximately equal in length to the blade, dilated at the base, blades broadly ovoid or triangular in outline, coriaceous, rigid, reticulate-veined, trisected nearly to the base, with divaricate segments, the middle ones tripartite, the lateral ones bipartite, with serrate-dentate margins, apices mucronate.

Subtending leaves: similar to the basal leaves but with subamplexicaul sheaths, abbreviated petioles, dilated, briefly winged, trilobate blades, with lobes subundivided, decurrent.

Diplosciadia: capituliform, numerous, small, 10-15 mm in diameter.

Bracts: 7-9, subulate, rigid, with margins subentire or remotely spinulose above the base, two or three times longer than the diplosciadia.

Bracteoles: entire, subulate, rigid, far exceeding the flowers.

Calyx: teeth ovate-lanceolate, with acuminate apices, briefly mucronate.

Fruit: dorsally compressed, with imbricate mericarp scales, broadly lanceolate or obovate, with obtuse apices, flattened on the face, with irregularly dentate margins.

(Claude)

Plantae perennes, pallide virentes, radicibus verticalibus.

Caules stricte erecti, rigidi 30-100 cm alti, basi 15 mm crassi, dense foliati, in parte media et superiore paracladiis abbreviatis, numerosis, synflorescentiam anguste cylindricam thyrsoideam semimetralem formantibus.

Folia radicalia petiolata, petiolis lamine subaequilongis, basi dilatatis, laminis ambitu late ovoideis vel triangulatis, coriaceis, rigidis, reticulato-venosis, fere usque ad basin trisectis, segmentis divaricatis, mediis tripartitis, lateralibus bipartitis, margine serrato-dentatis, apice mucronatis.

Folia fulcrantia foliis radicalibus similia sed vaginis subamplexicaulibus, petiolis abbreviatis, dilatatis, breviter alatis, laminis trilobatis, lobis

subindivisis, decurrentibus.

Diplosciadia capituliformia, numerosa, parva, 10-15 mm in diam.

Bracteae 7-9, subulatae, rigidae, margine subinermes vel supra basin remote spinulosae, diplosciadiis duplo vel triplo longiores.

Bracteolae integrae, subulatae, rigidae, flores longe superantes.

Dentes calycini ovato-lanceolati, apice acuminati, breviter mucronati.

Fructus dorso compressus, squamis mericarporum imbricatis, late lanceolatis vel obovatis, apice obtusis, facie tabulatis, margine irregulariter dentatis.

Distr. gen.: Anatolia austro-orientalis, Iraq, Persia.

Wolff 1913

Subsection 3. Eucampestria Wolff.

Eucampestria Wolff. - **Leaves** mostly large, up to bipinnatifid or -sect, rigidly spinose-dentate, decurrent to the petiole or abruptly petiolate. **Inflorescence** amethyst-colored or not colored. **Floral bracts** entire or the outer ones tricuspidate.

35. E. thyrsoideum Boiss. in Ann. sc. nat. Bot. ser. 3. I. (1844) 121 and Fl. orient. II. (1872) 822.

Plant: robust, very rigid, one meter high and taller.

Stem: at base \pm 15 mm thick, strictly erect, remotely leafy, above furnished with very numerous alternating abbreviated branches once or twice 5-6-furcate-branched, at apex...

Leaves: coriaceous, very rigid,

basal ones: supported by a petiole \pm equaling the blade, subflat, multinerved, up to 20 cm long, up to 25 cm wide, trisect almost to the base, middle segment deeply tripartite, lateral ones bilobed, all ovate-oblong, serrate-dentate, teeth produced into a very rigid spine, spinulose between the teeth, more rarely with segments and lobes \pm distinctly lacinate;

lower cauline ones: supported by a shortly winged petiole, decurrent-amplexicaul, trilobed, lobes subundivided, margin as in basal leaves;

upper ones: ovate or ovate-lanceolate, pinnatifid or incise-serrate-dentate, teeth produced into a rigid spine.

Inflorescence: half a meter long and longer, "thyrsoid"; prophylls reflexed;

heads: as above globose-ovoid, up to 15 mm long;

involucral bracts: subulate, very rigid, pungent-very acute, margin subinermous or remotely spinulose, 2-3 times longer than the heads;

floral bracts: rigid, subulate, curved, spinescent-acute, entire, up to 12 mm long, far exceeding the flowers.

Sepals: ovate-lanceolate, acuminate, shortly mucronate, $3\frac{1}{2}$ mm long; petals oblong, papillose, narrowed into an equally long, sublinear lobe, fimbriate at apex, 2 mm long.

Fruit: everywhere covered with lanceolate scales, larger toward the sepals; mericarps compressed, smooth at the broad flat face.

Geo: Armenian-Iranian Mediterranean province: Armenia, at the southern foothills of Ararat (Aucher-Eloy, Herb. d'Or. n. 3570); Northwestern Persia, between Sihna and Kermanchah on calcareous grasslands, 6-8000' above sea level (Haussknecht); Luristan: Schuturum-Kuh (Strauss - Herb. Bornmüller); flowers in September.

Note: Plant exudes pale gum from the axils and from the entire inflorescence.

Subsect. 3. *Eucampestria* Wolff.

Eucampestria Wolff. - Folia plerumque magna, usque bipinnatifida vel -secta, rigide spinoso-dentata, ad petiolum decurrentia vel abrupte petiolata. Inflorescentia amethystina vel non colorata. Bractee florales integrae vel exteriores tricuspidatae.

35. *E. thyrsoides* Boiss. in Ann. sc. nat. Bot. ser. 3. I. (1844) 121 et Fl. orient. II. (1872) 822. - Planta valida rigidissima metralis et ultra alta. Caulis basi ± 15 mm crassus, stricte erectus, remote foliosus, superne ramis numerosissimis alternantibus abbreviatis semel vel bis 5-6-furcato-ramulosis instructus, apice...

Folia coriacea, rigidissima, basalia petiolo laminam ± aequante, subplano, multinervio fulta, usque 20 cm longa, usque 25 cm lata, fere usque ad basin trisecta, segmento medio profunde tripartito, lateralibus bilobis, omnibus ovato-oblongis, serrato-dentatis, dentibus in spinam rigidissimam productis, inter dentes spinulosis, rarius segmentis et lobis ± manifeste laciniatis; caulina inferiora petiolo breviter alato, decurrenti-amplexicauli fulta, triloba, lobis subindivisis, margine ut fol. bas.; superiora ovata vel ovato-lanceolata, pinnatifida vel inciso-serrato-dentata, dentibus in spinam rigidam productis.

Inflorescentia semimetralis et longior, »thyrsoides«; prophylla reflexa; capitula s. a. globoso-ovoidea, usque 15 mm longa; bractee involucales subulatae, rigidissimae, pungenti-acutissimae, margine subinermes vel remote spinulosae, capitulis 2-3-plo longiores; florales rigidae, subulatae, curvatae, spinescenti-acutae, integrae, usque 12 mm longae, flores longe superantes.

Sepala ovato-lanceolata, acuminata, breviter mucronata, 3½ mm longa; petala oblonga, papillulosa, in lobulum aequilongum, sublinearem, apice fimbriatum angustata, 2 mm longa.

Fructus ubique squamis lanceolatis ad sepala versus majoribus obsitus; mericarpiis compressa, ad faciem latam planam laevia.

Armenisch-iranische Mediterranprovinz: Armenien, an den Südausläufern des Ararat (Aucher-Eloy, Herb. d'Or. n. 3570); Nordwestpersien, zwischen Sihna und Kermanschah auf kalkhaltigen Triften, 6-8000' ü. M. (Haussknecht); Luristan: Schuturum-Kuh (Strauss - Herb. Bornmüller); blüht im September.

Nota. Planta ex axillis et ex tota inflorescentia gummi pallidum exsudat.

Transcription: Al then checked against image then winmerge-checked against OCR

trisectum

[PoWo](#) - Turkey only

Info: hemicryptophyte = perennial with overwintering buds at soil surface

PDF trisectum 2004

Plant: Perennial hemicryptophyte; green, reddish to lilac in the upper parts, 30-90 cm tall; with a fibrous taproot up to 15 mm in diam.

Basal leaves: long-petiolate, with flat petioles to 15 cm long, lamina 3-4(-5)-sected, or trisected with two small additional rudimentary segments, segments 1-3 mm broad, up to 300 mm long, giving the plant a grass-like appearance, entire, not spiny or pungent, parallel-veined.

Stem: erect, single or double, whitish, shallowly grooved, tinged lilac in the upper part, branched only in the synflorescence, with a tuft of dry leaf sheaths at the base.

Cauline leaves: parallel-veined, trisected in the lower part of the stem, similar to the basal leaves, with a flat, sheathy petiole, undivided, linear to lanceolate in the upper part of the stem, sessile with a broadened base bearing some small marginal spines; leaves subtending lower branches of the synflorescence not exceeding the branches.

Capitula: 8-15, umbels hemispherical, synflorescence dichasial or corymbose, spreading.

Involucral leaves: 10-20(-25) × 3-4 mm, 2-3 x as long as umbel, 5-6 per capitulum, subulate, with 1 pair, rarely more or 0, of marginal spines, parallel-veined, pungent, mostly with a basal whorl of additional, long spines.

Bracts: entire, linear, with a broadened midrib and a white, narrow margin, pungent, about as long as the flower incl. fruit.

Sepals: ovate to oblong, acuminate, pungent, sometimes mucronate, with a white margin.

Petals: white to lilac with a long inflexed lobe, apex 2-tipped.

Fruits: ovoid, flattened, with long-acuminate to subulate appendages at the margins and the apices, shorter ones on the back.

Biology: Flowering in August. Bumblebees have been observed to visit the flowers.

Relationship: Closely related to *Eryngium palmito* Boiss. & Heldr., probably a serpentine vicariant.

E. trisectum differs by its mostly three and narrower leaf segments, the shorter leaves at the base of the lower branches of the synflorescence, the long-pedunculate capitula, the dichasial or corymbose synflorescence, shorter involucral leaves (10-20(-25) mm not 20-45 mm), and the reddish lilac colour.

E. serbicum Panci, from the Balkans, has dentate leaf segments (entire in *E. trisectum*), 6-8 (not 5-6) involucral leaves, and blue colour.

E. ternatum Poir., from Crete, also has trisected cauline leaves, but has undivided basal leaves and much broader, dentate leaf segments.

Note: The new species belongs to the *E.* subg. *Eryngium* (for the subgeneric classification see Wörz, in press) and to the *E.* sect. *Palmito* Wolff, which consists of four other species (*E. palmito* Boiss. & Heldr., *E. serbicum* Panci, *E. ternatum* Poir. and *E. wanaturi* Woronow, see Table 1). All occur in small, isolated areas and must be considered typical relic endemics (for distribution maps see Wörz 2004).

Ecology: *Eryngium trisectum* grows in the Taurus Mountains in southern Turkey between 1600 and 1700 m elevation, on the slope of a serpentine hill with northern exposure, under the fairly open canopy of a *Pinus nigra* Arn. forest, on more or less deep soil with some serpentine rubble on the surface. The habitat is sun-exposed and dry. Among the most important associated species are *Koeleria macrantha* (Ledeb.) Schult., *Sideritis ozturkii* Aytaç & Aksoy (local endemic), *Asyneuma rigidum* (Willd.) Grossh., *Pimpinella tragium* Vill., *Saponaria pamphylica* Boiss. & Heldr. (endemic), *Polygonum setosum* Jack., *Pelargonium endlicherianum* Fenzl, *Aethionema spicatum* Post, *Bornmuellera kiyakii* Aytaç & Aksoy (local endemic), *Prometheum chrysanthum* (Boiss.) t'Hart (endemic), *Dactylis glomerata* L. and *Solidago virgaurea* L.

Distribution: Known only from the recent type collection from the Kızıl Dağ in the Central Taurus, Turkey. Endemic.

Conservation status: This species is known from only a single locality (criterion B2 a), with an area of occupancy estimated to be less than 10 km² (criterion B2), so that it should be classified as "Critically Endangered (CR)" (IUCN 2001). The population consists of a few thousand individuals growing on the northern slope of the Kızıl Dağ.

Table

palmito / trisectum / ...

Segments of basal leaves: 5-7 / 3-5

Segments of cauline leaves: 5 / 3

Synflorescence: paniculate racemose / dichasial corymbose

Involucral leaves, length mm: 20-35 / 10-20

Colour: blue / reddish lilac

wanaturi

PoWo - Iran, Transcaucasus, Turkey

Flora of Turkey 1972

13. *E. wanatur* Woron. in Izv. Kavkaz. Muz. 11:54 (1917); Grossh., Fl. Kavk. ed. 1, 3:121 (1932). Syn: *E. woronowii* Bordz. in Feddes Rep. 36:303 (1934), lc: Grossh., Fl. Kavk. 7: t. 4 (1967).

Plant: Slender perennial, with fibrous collar.

Stem: 27-57 cm, branched only above.

Basal and lower cauline leaves: persistent, linear, 26-40 x c. 1 cm, parallel-veined, very acute, entire or margin sparsely setose;

upper cauline leaves: shorter, sessile, linear-lanceolate, canaliculate.

Inflorescence: glaucescent to bluish, subcorymbose with 3-6 subglobose capitula up to 2 cm diam.

Bracts: 6-8, linear-lanceolate, pungent, margin spinulose, c. 1.5 x capitulum.

Bracteoles: all entire.

Fl.: Pastures.

Described: from Soviet Armenia.

Geo: E. Anatolia. B9 - Soviet Armenia, N.W. Iran. Ir.-Tur. element.

Note: A remarkably distinct species, superficially resembling S. American species in its grass-like leaves, but perhaps distantly related (despite differences in leaf and bracteole shape) to *E. palmito* from S.W. Anatolia.

Flora Iranica 1987

Plant: Perennial, monocarpic, with vertical, sparsely branched roots.

Stems: solitary, glaucous-blue, erect, 25-60 cm tall, clothed at the base with fibrous remains of dead petioles, sparingly branched in the upper part, forming a narrow subcorymbose synflorescence.

Leaves: entire,

basal leaves: linear, 10-40 x 1 cm, coriaceous, with subinconspicuous petioles, margin entire or sparsely setose, apex long-attenuate,

cauline leaves: similar but smaller, shorter, stem-clasping,

upper leaves: lanceolate-linear, apex sometimes bifid.

Diplosciadae: few (2-6), small or medium, hemispherical, 10-20 mm in diameter.

Bracts: 6-9, linear or linear-lanceolate, up to 25 mm long, subulate, pungent, setulose-spinulose on the margin below, one and a half times longer than the diplosciadae.

Bracteoles: entire, lanceolate, with thickened midrib and margins, longer than the flowers.

Calyx: teeth lanceolate, apex mucronate.

Petals: white, bluish at the apex.

Mericarps: covered with densely imbricate acute scales.

Note: This species is in its habit like some South-American and Mexican species.

(Claude)

Plantae perennes, monocarpicae, radicibus verticalibus, parce ramosis.

Caules solitarii glaucescenti-coerulei, erecti, 25-60 cm alti, basi residuis fibrosis petiolorum emortuorum vestiti, in parte superiore parum ramosi, synflorescentiam angustam subcorymbosam formantes.

Folia integra, radicalia linearia, 10-40 x 1 cm, coriacea, petiolis subinconspicuis, margine integerrima vel sparse setosa, apice longe attenuata, caulina similia sed minora, breviora, amplexicaulia, superiora lanceolato-linearia, apice interdum bifida.

Diplosciadia pauca (2-6), parva vel mediocria, semiglobosa, 10-20 mm diam.

Bracteae 6-9, lineares vel lineari-lanceolatae, ad 25 mm longae, subulatae, pungentes, inferne margine setuloso-spinulosae, diplosciadiis sesquialongiores.

Bracteolae integrae, lanceolatae, nervo mediano marginibusque incrassatae, floribus longiores.

Dentes calycini lanceolati, apice mucronati.

Petala alba, apice coerulea.

Mericarpia squamis acutis dense imbricatis oblecta.

USSR 1950

14. E. wanaturi Woron. in Izv. Kavk. Muzeya (1918) 54; Grossg., Fl. Kavk. III, 121. - E. woronowii E. Bordz. in Fedde, Repert. XXXVI (1934) 303.

Plant: Perennial;

stems: 35-50 cm high, solitary, bluish above, branching slightly above, base covered with remnants of dead leaves;

leaves: coriaceous, entire;

radical leaves: linear, 10-30 cm long, to 1 cm wide, tapering to poorly developed petiole; nerves longitudinal, the median and marginal thickened;

cauline leaves: shorter, amplexicaul,

the upper: to 1.5 cm wide at base, lanceolate-linear, elongating, with few bristly spines at margin;

uppermost leaves: shorter, bifid.

Inflorescence: of 2-5 globular heads, 1-1.5 cm long;

leaflets of involucre: 7-9, spinose, linear, margin bristly-spinose, especially in lower part;

bracts: lanceolate, curved, longer than flowers, the outer sometimes with 1-2 prickles;

petals: blue, deeply 2-partite above;

calyx-teeth: lanceolate, with spinose cusp;

fruit: dorsally covered with cartilaginous scales.

Fl.: June, Fr. July. Plate IV, Figure 1.

Hab: Stony slopes, high mountain belt.

Geo: Caucasus: S. Transc. (Daralagez, Karny Yarykh). Gen. distr.: Arm.-Kurd. Described from Sandzhan, near the upper reaches of the Euphrates. Cotype in Leningrad.

Flora Kavkaza 1967

Stems: 40-50 cm high, glaucous-bluish.

Leaves: coriaceous,

basal ones: on long petioles linear, multi-nerved,

cauline ones: sessile, at the base ciliate along margins with long cilia,

uppermost ones: sometimes bi- or tri-pinnately dissected.

Inflorescence: paniculate.

Capitula: almost globose, 5-6 cm wide.

Involucral bracts: 7-9, narrowly linear-lanceolate, rigid.

Distribution: Iran: Armenia (in Daralagez). In the upper mountain belt. On grassy slopes.

Geographical type: Armeno-montane. (Plate IV, 1; Map 12).

Стебли 40-50 см выс., сизовато-голубоватые. Листья кожистые, прикорневые на длинных черешках линейные, многонервные, стеблевые сидячие, у основания по краям длиннореснитчатые, самые верхние иногда дважды-трижды рассеченные. Соцветие метельчатое. Головки почти шаровидные, 5-6 см шир. Листочков обертки 7-9, узко линейно-ланцетные, жесткие. М. - Ир.: Арм. (в Даралагезе). В верхнем горном поясе. На травянистых склонах. Геогр. тип.: армянско-горный. (Табл. IV, 1; Карта 12).

Other Species

List of species in some of the books

Atlas of the Aegean 2016: amorginum Rech. f.; and above: maritimum, creticum, falcatum, ternatum, glomeratum, camestre, amethystinum

Flora Europaea 1968: pandanifolium, tenue, spinalba, alpinum, duriaei, ternatum, serbicum, amorginum, barlieri, galioides, viviparum bourgatii, tricuspidatum, corniculatum, triquetrum, campestre, maritimum, ilicifolium, aquifolium, creticum, planum, dichotomum (& caeruleum), amethystinum, glaciale, dilatatum, palmatum (& wiegandii)

Flora of Greece Project ed 1: ternatum, serbicum, maritimum, creticum, falcatum, wiegandii, palmatum, glomeratum, amethystinum, amorginum, campestre

Flora Iberica 2003: tenue, pandanifolium, corniculatum, viviparum, galioides, ilicifolium, tricuspidatum, duriaei, campestre, aquifolium, huteri, glaciale, dilatatum, maritimum, grosii, bourgatii

Flora Iranica 1987: bungei Boiss., macrocalyx Schrenk, caasicum Trautv., Rechingeri Tamamsch. & M. PIMEN., carlinoides Boiss.; and as above.

Flora Kavkaza 1967: wanaturi Woron., giganteum M.B., planum L., maritimum L., biebersteinianum Nevsky., caasicum Trautv., campestre L., nigromontanum Boiss. et Buhse.

Sell 2009: planum, giganteum, maritimum, campestre, amethystinum

Syria-Palestine Post 1932: barlieri Boiss., glomeratum Lam., campestre L., billardieri Laroche & kotschy Boiss., heldreichii Boiss. & fallax Bornm., dichotomum Desf., falcatum Laroche, tricuspidatum L., ereticum Lam. & oblongum Post & lobatum Post & spinulosum Post & f. umbrosa Bornm., maritimum L.

USSR 1950: wanaturi Woron., giganteum M.B., maritimum L., noëanum Boiss., campestre L., nigromontanum Boiss. et Buhse., balchanicum Bobr., bungei Boiss., macrocalyx Schrenk., incognitum Pavl., karatavicum Ijin., mirandum Bobr., biebersteinianum Nevski., planum L.

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Flora of Turkey 2001 - Flora of Turkey and the East Aegean Islands vol 11 (Supplement), 2001, Adil Güner

FOT10 - See Flora of Turkey 1988

FOT11 - See Flora of Turkey 2001

Flora Iberica 2003 - Flora iberica vol. 10, 2003 ([link](#))

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